

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 35

January, 1945

Number 1

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Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$5.00 per year for United States, Cuba and Mexico, South and Central America; \$5.50 for Canada; and \$6.00 for other countries. Single copies 50 cents postpaid. Copyright, 1945, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to the Managing Editor, Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

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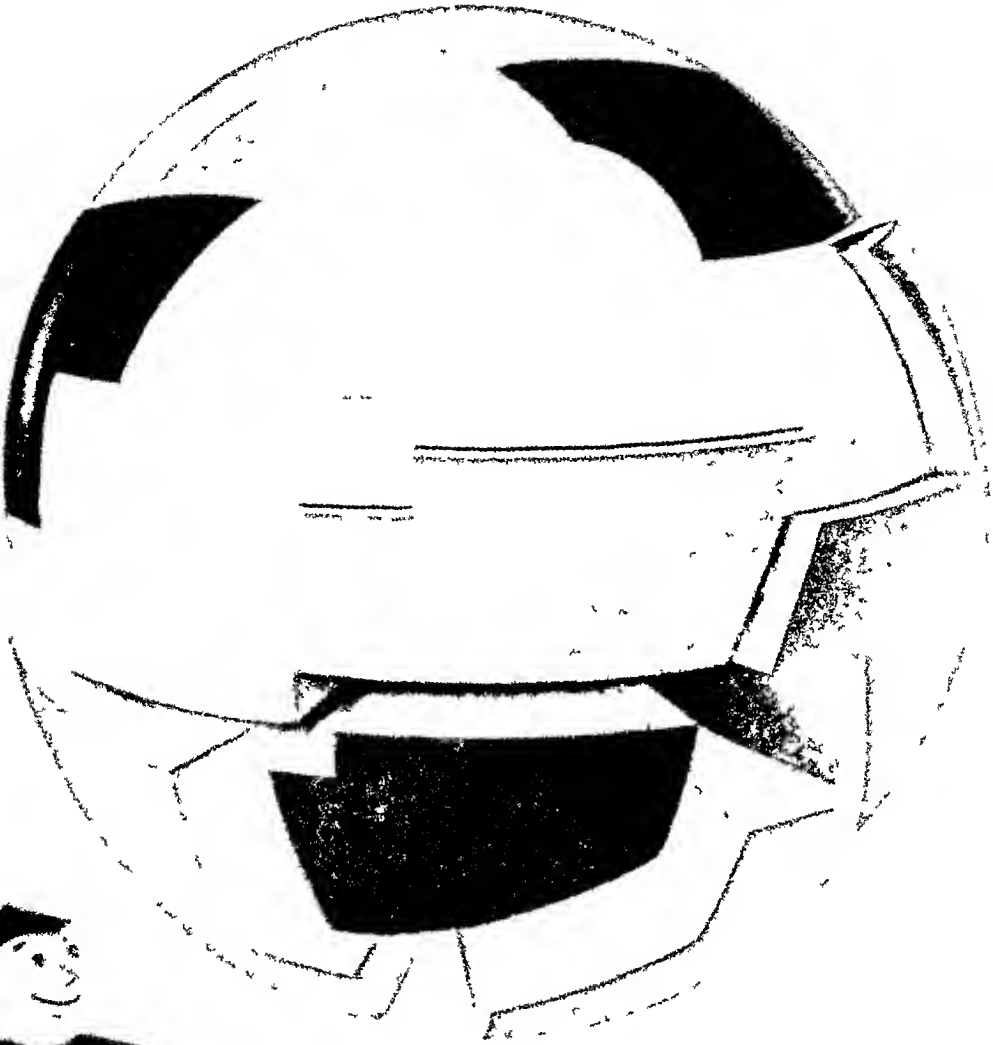
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How many ways can you build a globe?

As many as you please—provided the parts fit!

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American Journal of Public Health

and THE NATION'S HEALTH

Volume 35

January, 1945

Number 1

Landmarks of 1944

Association Progress in 1944 *

ABEL WOLMAN, DR.ENG., F.A.P.H.A.

Professor of Sanitary Engineering, The Johns Hopkins University, Baltimore, Md.

THE time is not far off when someone, doubtless, will propose that a history be prepared covering seventy-five years of public health in America and the Association's place therein, as *A Half Century of Public Health* was brought out in 1921 in connection with the Association's fiftieth anniversary. Our seventy-fifth anniversary is less than two years away. In the light of this realization, the immediately influential occurrences of the last year, which should be the subject of this report, take their places in proper perspective. The events of one year are not sharply separated from those of another. Many of the aspects of the work of the Association have their roots a long way back, and in marking present progress the cumulative effect of the work of men and women in other days is clearly recognized and acknowledged.

We were challenged, a short while ago, to state the essence of the Associa-

tion, and it was done in this way: "The strength and influence of the Association over the years derives from its unique ability to gather to itself, in terms of persons, all the professional health resources of the continent and, more recently, of the hemisphere. From this concentration of knowledge, wisdom, and experience, willingly pooled by each generation of health workers, and intelligently directed by their chosen leaders, it has been able to make its long series of invaluable contributions."

If this is true, and we believe it is, then the main theme of a 75 year history should be the degree and kind of voluntary service of which this organization has been the channel. The stuff of which it might be fashioned would come directly from the professional biographies of its members, past and present.

MEMBERSHIP

In any given year, the historian would find the best minds of the profession active in the Association, and the

* Report of the Chairman of the Executive Board to the Governing Council of the American Public Health Association presented at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

large majority of the continent's health workers regarding the Association as their professional home. In 1872, when the Association was founded, only three states and the District of Columbia had established boards of health and only 134 cities in the United States had what passed for a board of health. Yet at the first meeting of the Association at which members were elected, on September 12 of that year, the 72 persons elected represented 38 cities of the United States and 3 of Canada. The secretaries of two of the three existing state boards of health were among them and, appropriately enough, two college presidents. Today all but four of the state and territorial health officials are members or Fellows. The membership of our Health Officers Section is now 1,700, and there are somewhat under 2,000 full-time health officers in the United States. The Canadian membership in the Association exceeds 300, and Mexican, Cuban, and South American members number 218.

As public health has developed over the years and its practitioners become more numerous, they have entered the Association in constantly increasing numbers, and there have been very few years which have not shown a substantial gain. The overall membership figures for the last 12 months stand higher than ever before. As of September 1, 8,991 Fellows and members are enrolled in this professional society. There are 125 applications for Fellowship to be acted upon by the Governing Council at this meeting. These new Fellows promise to carry on the traditions of professional accomplishment of which we are justly proud, as they take their places in the long line of those who have brought honor and distinction to the Association and to themselves.

The number and quality of our constituency is, as it has always been, our most valuable asset. We have other assets in our 2 regional branches, 22

state, 1 city and 2 insular affiliated societies. Our Sustaining Members, whose dues are not earmarked for specific purposes, but which make preliminary work on new enterprises possible, are also strong assets. There are now 32 of these, a real growth over two years ago when the number was 14. This makes the total Association membership as of September 1, 1944, 9,064.

THE JOURNAL

A natural accompaniment to growth in membership is growth in *Journal* circulation. As there are more members than ever before, more copies of the *Journal* would have been distributed this year than at any other time in the past, even without the Army's order for more than 1,100 copies to be sent to every Army post in the world. The monthly circulation now averages more than 12,000 copies.

In our 75 year history the *Journal* would first appear in 1911, although the importance and influence of annual volumes of transactions which it supplanted, and those who compiled them, would have more than passing notice. The editors, editorial boards, consultants, and contributors who brought the magazine to its premier position among health journals, and those who now keep it there, add up to an impressive total, by count and by professional weight, and, in many instances, like Dr. Vaughan, Dr. Ravenel, Dr. Raymond Patterson, Arthur Miller, and others, by number of consecutive years of service. The *Journal* has profited by more than three years under the editorship of Dr. Harry Stoll Mustard who, since the last Annual Meeting, has relinquished this post at his own request and because of other pressing duties. His successor as editor has needed no introduction. Professor C.-E. A. Winslow has brought a mature perspective to his task, together with a ready pen, and his editorials have al-

ready attracted national and international comment.

SECTIONS, COMMITTEES AND PUBLICATIONS

The story of the development of the Sections would have a place in our history, beginning with the Laboratory Section in 1899; continuing with Health Officers, Vital Statistics, Engineering, Industrial Hygiene, and Food and Nutrition, from 1908 to 1917; through the inclusion of Public Health Education, Public Health Nursing, and Maternal and Child Health in the early 20's, Epidemiology in 1929, to School Health and Dental Health in 1943. The last-named, it must be noted, is holding its first sessions as an integral part of the Association at this meeting. A study of the entire network of scientific committees, both Section and Association, would reward the historian and bring into prominence hundreds of individuals who at one time or another gave gruelling labor to solving the host of problems which brought the committees into being. Intimately involved in this story would be those persons who pioneered in the specialties once regarded as esoteric and who won recognition of them as legitimate activities of public health workers.

The names of active committees in any year are chapter headings relating to national health concerns of that year, and the personnel of the committees list the nation's health leaders. The year 1943-1944 is no exception. More than 100 committees have been working on today's problems and laying down programs for the future. Many of their reports have been carried in the *Journal*, the *Year Book* having been suspended for the duration. Committees of the Industrial Hygiene Section have published monographs on *Occupational Lead Exposure and Lead Poisoning*, and *Methods for Determining Lead in Air and in Biological Materials*, the latter

fresh from the press this month. The second edition of *Diagnostic Procedures and Reagents* will be available before 1944 is over, and the 9th editions of *Standard Methods of Water Analysis* and of *Standard Methods for the Examination of Dairy Products* are in preparation. These books are the proud products of the Laboratory Section.

There is a wealth of historical material in the standard methods volumes and the personalities associated with their beginnings—the one on water dating from the last century, the one on milk from the early years of this—and with their revisions to the present day. These standards and others which place foundations under public health work in America would be almost incapable of development, and devoid of respect and authority if developed, in the absence of a power like the Association to effect common agreement and action.

Outstanding among the reports revised in the last year is the *Report on the Control of Communicable Diseases*, first published in 1916 as a report from the Health Officers Section, and which in recent years through several revisions has been produced under the auspices of the Committee on Research and Standards. During all these years the Association has been indebted to Dr. Haven Emerson and his distinguished associates among the epidemiologists for this remarkable document which summarizes the essential information available for each of the more common communicable diseases. The present edition includes 77 diseases, being 13 more than the last. Among the new chapters are tropical diseases, especially those affecting the western hemisphere. Again it is anticipated that this report will become official for the U. S. Public Health Service. For the first time this year it is expected that at least a large portion of the chapters will carry the stamp of approval of the British Ministry of Health. The significance of

this new international aspect is self-evident. The report itself continues to receive world-wide use.

Other publications which may be mentioned here briefly, because they will be fully dealt with in the reports to the Governing Council of the Committees responsible for them, are three new books by the Committee on Hygiene of Housing, to be brought out under the imprint of the Milbank Memorial Fund. The committee has had its support this year, and it is gratefully acknowledged, from the Metropolitan Life Insurance Company, the Milbank Memorial Fund, and the National Tuberculosis Association. Also the Report of the Committee on Local Health Units. The Commonwealth Fund has sponsored the latter study and will also sponsor the publication of the results.

The Committee on Professional Education has produced two reports—on school physicians and medical administrators—to add to its series of educational qualifications of various types of public health workers, which now totals 11. They will be presented for Governing Council approval at this meeting. A half dozen additional reports are being matured for Association approval.

An important report published in advance of its presentation to the Governing Council, so that members might comment, is the report of the Subcommittee on Medical Care of the Committee on Administrative Practice. This is the outgrowth of a long-standing desire on the part of many Association leaders for an official statement by the Association on this subject as it relates to public health. Presumably the Committee on Administrative Practice will have a recommendation for the Governing Council on this topic.

THE COMMITTEE ON ADMINISTRATIVE PRACTICE

The Committee on Administrative

Practice would enter our history before we had reached the half century mark and its record would be one of notable continuity and vitality.

This year there has been some change in emphasis in the program of the committee which has followed a well known pattern for the past decade and which has included the National Health Honor Roll, surveys of state and local health administration, and the development of more useful appraisal methods among several activities. Fifteen years of experience with the Contests and the Honor Roll have led to the conviction that the greatest values in these devices have been attained, and a national transition from these competitive forms to what may well become a National Reporting Area has taken place. Last year a volume called "Health Indices" was published by the committee with the financial assistance of the Commonwealth Fund in which was presented the attainment of some 134 health jurisdictions in many branches of health service. Part of the basic data grew out of the Honor Roll participation and part grew out of the submission of evaluation schedules by localities with the encouragement of their state departments of health. The reception which this volume has received in a large circulation makes it clear that there is a demand for such material and a use which can be made of it. Another edition of *Health Indices* will shortly appear. The coöperation which has been forthcoming for this venture even in wartime gives the committee reason to hope that it will result in a much wider and more effective use of systematic appraisal than was obtainable under the competitive methods used in the Contests and in the Honor Roll. Meantime the coöperation during the last fifteen years of the U. S. Chamber of Commerce in this promotion is acknowledged with appreciation. Very likely there will appear new

avenues of coöperation under the revised plans. The support of these appraisal methods in large part by several life insurance companies, notably by the Metropolitan Life Insurance Company, and by the W. K. Kellogg Foundation, is gratifying. There are long-range values in this development which will bear fruit for the public health during years to come.

A most encouraging advance has been made during recent months through the Subcommittee on Local Health Units which will be reported in greater detail elsewhere at this meeting. Patterns for full-time public health service to cover all of the United States have now been developed in accordance with the resolution of the Governing Council of 1942, and agreement has been reached with 46 of the 48 states as to the number of full-time units necessary. A full report on this activity will soon go to press and will provide a document unique in the United States and one which may have a profound effect in implementing the full coverage of the nation as advocated by this Association and by the American Medical Association. Again it is to the Commonwealth Fund and to the Kellogg Foundation that we are indebted for support of this project which has been carried forward under the leadership of Dr. Haven Emerson.

COMMITTEE ON HYGIENE OF HOUSING

There are vigorous undertakings of late years which possess the same qualifications for long and useful life as those longer established. The Committee on Hygiene of Housing is relatively young, yet in eight years it has published studies which, in their quality, reflect the work of a mature and productive group who have sought the facts and who have developed methods for measuring the hygienic quality of housing. The publication of their recent appraisal form, together with the

forthcoming manual, marks this year of the Association even if nothing else had been done.

MERIT SYSTEM UNIT

During the last four years the Governing Council has received progress reports from the Committee on Professional Education relating to the Merit System project now known as the Merit System Unit. Substantial achievement has marked the Unit's growth during the past twelve months. The early stages of the task of preparing examination material for the testing of public health personnel in the various specialties were of necessity concerned with the construction of test items. Now that the backlog of these examination questions approaches 10,000 in number, the Unit is in a good position to prepare examinations and, to date, a total of 97 examinations have been prepared at the request of merit system councils in 18 of the states. That this progress could have been achieved during a war period is all the more significant, especially since the recruitment of new workers has been an exceedingly difficult task. The Committee on Professional Education believes that through these methods there has been developed an instrument for testing applicants which is the best that our present knowledge permits. We shall be ready with approved methods when the list of eligibles will again be long. Then as now the future of the public health movement will depend in no small measure on the development of satisfactory instruments for choosing the best available personnel.

THE ANNUAL MEETINGS

It would be intensely interesting to trace the influence upon public health of 75 annual meetings of the Association and the growth of our conventions to their present position as the largest gatherings of public health workers held

anywhere in the world. They represent, among many other things, a lavish spread of voluntary service on the part of local committees, speakers, Governing Council, Section officers, committees, and delegates. In our long series of successful conventions, it has not happened before that the same Local Chairman has officiated in that capacity for two successive years. We acknowledge our double indebtedness to Dr. E. L. Stebbins, Health Commissioner of New York City, for welcoming both the First and Second of our Wartime Conferences to his city and for his personal concern with each.

FINANCING

The financing of the Association through the years and the persons who have been involved in this most necessary but generally thankless task would make fascinating reading. There would be long lists of generous contributors. There would be mention of hazardous periods and precarious positions. There would be of late years a record of funds secured with less heart-breaking effort to support the services the Association alone is equipped to render. Again and again there would occur among the credits and acknowledgments, as they do in 1943-1944, the names of the W. K. Kellogg Foundation, the Commonwealth Fund, the Milbank Memorial Fund, the John L. Pierce Foundation, the Metropolitan Life Insurance Company, and of many of our present Sustaining Members. And for the last twenty years, there would appear the name of Dr. Louis I. Dublin, as Treasurer, to whom no words of credit or acknowledgment can give adequate recognition.

COMMITTEE ON PROFESSIONAL RELATIONS WITH LATIN AMERICA

In addition to Dr. Dublin's work as Treasurer and his other Association responsibilities he was persuaded this

year to take the chairmanship of a committee appointed by the Executive Board, on instruction of the Governing Council, to develop professional relations with Latin America. The appointment of the committee was publicly announced in connection with the celebration of Pan American Day, December 2, 1943. The Chairman commemorated the day by dispatching a Health Charter for all the Americas to the executives of health departments in Latin American countries. The response has been encouraging. Conferences during the year with those specially informed about professional matters in Latin America have led the committee to believe that the experience of the Association can be valuable to our Latin friends of whom we have welcomed more than 200 at recent Association meetings. We stand ready to make available our experience in organizing a professional society for public health workers. Meantime we have ready for publication a digest in Spanish of our volume *Examination of Dairy Products*. We are coöperating in the translation into Spanish, Portuguese, and French of other Association reports, and the new edition of the *Report on the Control of Communicable Diseases* has been revised with special reference to diseases prevalent in Central and South America.

MISCELLANEOUS ACTIVITIES

Among other activities of the year was the 1944 circuit of meetings in the Western States, approved by the Executive Board on the strength of the success of the 1943 undertaking. It won extraordinary support, with a total attendance of more than 5,000 persons in the 13 sessions held among 12 states. It will be recalled that the purpose of the tour was to bring to public health workers on their home grounds, who would be unable to attend national meetings because of transportation and

other difficulties, qualified speakers of national reputation. The team of 13 organized for the 1944 tour was selected with the special needs and interests of the West in mind. It included Dr. Arthur Massey, Medical Officer of Health of Coventry, sent on request of the Association to represent the British Ministry of Health.

The usual services to the membership have been continued throughout the year. As the membership grows, the demands on the Book Service, the Employment Service, and the Information Service naturally increase. The turning to the Association by the members for advice, counsel, and help on all manner of problems is welcomed and encouraged.

There has been more than the ordinary amount of give and take in our organizational relationships. The list of Association representatives serving on committees of other organizations, and published with the Committee List in the April *Journal*, is long. Little of moment with public health implications takes place in the country these days without Association participation. Once more the record should show that much of the inspiration to action and to streamlining of functions is due to the enthusiasm and efficiency of the Executive Secretary and his competent staff.

We have been saddened by the death

of several Association leaders, among them Dr. C. C. Young, long identified with the Committee on Meetings and Publications and the Laboratory Section. At the time of his death he was serving as a member of the Executive Board as well as of the Governing Council. The loss of such men and women is particularly critical in these war years. The oncoming generation has the obligation to replace these men who had laid sound foundations.

When war came in 1941, there was much in the peacetime program of the Association that could be turned at once to national defense and to military purposes without change in basic program. The coming of the peace, to which we as a profession look forward with eager anticipation, need not mean for us even temporary disorganization. It may well be that "we shall be more troubled by the slow-moving progress of peace than we ever were by the urgent necessities of war," but we can be patient, though never resigned.

"This harmonious alliance of earnest men in a voluntary system of organized inquiry and conference" as the founding fathers described the Association, will, we believe, survive, as it has for nearly 75 years, and continue to be the agency through which future generations of health workers will render service to their fellow citizens.

Landmarks of 1944

Next Steps in the Appraisal of Public Health Work *

WILTON L. HALVERSON, M.D., F.A.P.H.A.

*State Director of Public Health, San Francisco, Calif., and Chairman,
Committee on Administrative Practice, A.P.H.A.*

APPRAISAL and evaluation of public health practices have been a first priority on the attention of the Committee on Administrative Practice since its inception a quarter of a century ago. Our health program, our staff, our facilities—what they are and what they ought to be in terms of community needs—these are the incentives for appraisal.

To progress, one must plan. But to plan one must see and know. An appraisal aims to produce a pictorial presentation of a situation, with both the realistic clarity of a photograph and the lights, shades, and tones of a painting.

An appraisal implies a background against which to appraise. This background may be the judgment of an individual or a committee, utilizing their pooled experience, or it may be the existing practices of the day.

Through trial and error your committee has sought from the beginning to develop comprehensive, sound, and practicable methods for gauging the adequacy of public health activities. Its goal throughout has been, first, to aid health departments in achieving something broader and better; and,

second, to arouse communities to an appreciation and support of adequate public health protection.

In all this work the committee is deeply indebted to its financial sponsors, the Metropolitan Life Insurance Company, and other companies as well, the W. K. Kellogg Foundation, and the Commonwealth Fund. I cannot refrain also from paying tribute to the enlightened leadership of my predecessors as Chairmen who have served their terms during this quarter century, Drs. Winslow, Emerson, Bishop, and Vaughan.

You are familiar with the *Appraisal Form for Local Health Work*, first adapted to cities and later to rural areas. This document grew through successive revisions from its preliminary edition in 1925 of 40 pages, to 180 pages in the final edition of 1938. The successor to the *Appraisal Form* was the *Evaluation Schedule* first drafted in 1929. Its specific use was in connection with a Health Conservation Contest carried on jointly by the American Public Health Association, the U. S. Chamber of Commerce, and the Canadian Public Health Association, and designed to stimulate competition among communities. Revised repeatedly, it served the purposes of the National Health Honor Roll, a modification of the preceding Contest

* Presented before the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

program. In this last year 194 communities in 33 states and 4 provinces of Canada filled out this schedule and submitted it for grading and comment to your committee.

Out of the wealth of this long experience your committee has in this last year again embarked on still a new phase of the appraisal process. Contests serve their purpose in a promotion movement but they should lead to a firmer establishment for continuing work. The present year thus marks the termination of the National Health Honor Roll competition, as such, but the continuation, independently and yet with full understanding and co-operation, of the work of the American Public Health Association and the U. S. Chamber of Commerce, in the interest of sound community health service, each working through the channels of contacts best suited to each.

As our committee looks ahead we visualize the creation of a National Reporting Area for Health Practices. Communities would be enrolled on stating their intention of submitting schedules for two years in succession, and then again after a lapse of two years. We see this developing through the active participation of state departments of health, each utilizing the appraisal principle as a means of stimulating local interest in adequate programs, and of acquiring factual data upon which a state health department may base its program of aid and supervision. We foresee the continued participation of the American Public Health Association as the professional consultant and integrator of this program, and as the assembler and interpreter of these extensive data through the medium of *Health Practice Indices*, the booklet of charts first issued in 1943 and now about to be issued in its second edition in 1944.*

We see communities using the evaluation schedule first to serve their own analytical informative and promotion purposes. The purpose of a lapse of two years after the submission of schedules for two successive years is to allow time for thorough digestion and reconstruction before a further evaluation. We see intensification of the appraisal process within the states of one area one year, and in another area the following year. We see the annual publication of *Health Practice Indices* which furnishes the useful background for current practices. This is the present plan of the committee and further, more definite, announcements will be made.

Mention has already been made of the increasing interest of state departments of health in the appraisal of communities. In this last year, 140 of the 194 schedules submitted came from 12 states where a coöperative plan with state health departments had been worked out.

We see great good coming from the use of appraisals as a means of bringing state and local health departments into closer working relationships. The former, through its director of local health service, by knowing more intimately the problems and indices of practice of localities, is in a better position to render advisory service and to allot supplemental financial aid. The local community in turn tends to appreciate more fully the value of accumulated experience acquired by the state director of local service, and thus is more ready to seek counsel from the state.

The work of the field staff of the Association, which is identified intimately with the work of the Committee on Administrative Practice, confirms the above statement. This staff is busy part of the year in conducting special, intensive studies in a limited number of state health departments and of

* Published November, 1944, and now available.

cities and counties. This work is in addition to the general appraisals carried on through the submission of the evaluation schedules. Their experience points to the inevitable close linking of the state and locality and their consideration as a common problem. Public health advancement in the state is dependent not only on the leadership exercised by the state health department, but also upon the desire for better service in the local community. Local communities are handicapped in their progress without the strong support of the state health department. The interests of the two are common. Their advancements must go along together.

In the field of public health appraisal, your committee is not unmindful of the fact that its published instrument of appraisal, the *Evaluation Schedule*, is by no means a perfect document. The committee has endeavored in the past and will continue in the future to improve this instrument from time to time. Too frequent revision, however, makes for confusion and inconvenience in the locality, and for this reason no revision will be made this year.

The committee is also keenly aware of the burdens of record keeping now faced by local health departments to

meet the requests for information from different sources. With this in mind you will be interested to know that close collaborative study is being carried on by the committee and the U. S. Public Health Service in the effort to work out a procedure that will reduce multiple record keeping. We are hopeful that definite progress can be made in this direction.

We bespeak the coöperation of state and local health officers this coming year in submitting schedules for evaluation.

While further plans will be announced shortly, it is the intention to postpone the date for submission of schedules from March 1, as formerly, to the period from May 1 to July 1.

With the word "reconversion?" very much in the air these days, we are looking ahead also to "reconversions" in health administration. The appraisal method has assisted materially in bringing home to us our needs and our shortcomings.

Following the termination of the war and the return of health personnel to civilian pursuits, we predict with confidence a new surge forward in public health protection throughout the country.

workers, public health nurses, and sanitarians. Examinations for other classes of personnel may soon be available. To date 100 examinations have been prepared for 19 states and 1 city. The examinations produced by this process are, in our opinion, the most satisfactory instruments now available for testing both the knowledge and the judgment of candidates for public health positions and ranking them in an order which is based on a sound and objective evaluation of their professional skills.

Another responsibility of the Merit System Unit is to study and promulgate the most modern practices of personnel management within health departments. It is hoped that a manual on modern personnel practices may eventually be available for public health administrators. If we are to train and select superior personnel in the public health field we must also see that they are treated fairly.

A subcommittee of the Committee on Professional Education is working on undergraduate public health education in medical schools. An upshot of this committee's work is the second annual Conference of Professors of Public Health and Preventive Medicine, held here early this week. An enlightened medical profession is essential to public health progress, and the place to plant this seed is in the medical school.

Another subcommittee is studying the administration and possible certification of field training centers. Schools of public health agree that the student's didactic teaching must be supplemented by practical training and observation in the field. Where this is best done, what the relationships should be between the field training center and the school, what supervision is necessary and by whom it should be given, what the costs are and who is to bear them, are all questions of moment.

Each year the committee publishes a

resumé of the number of students enrolled in all public health courses in all schools granting public health degrees in this country and Canada. Fifty schools now grant twenty different degrees and certificates to various classes of public health personnel. Greater uniformity in public health degrees is highly desirable. The report is of great value in measuring trends in quantity, if not quality, of graduate training.

Federal stipends for training purposes have been a great boon to the public health profession. In the main they have been well spent under the supervision of state health officers. With funds for training war veterans now available, however, there is increasing danger that inferior schools of public health may spring up. We may find ourselves in the position of the American medical schools of 50 years ago, a situation much easier to prevent than to remedy. The committee has already issued a statement of "Desirable Minimum Facilities for the Graduate Training of Public Health Personnel." It may soon be desirable to set up more detailed standards and then to seek funds for the periodic examination and certification of schools of public health. We are working closely with the Association of Schools of Public Health on this problem and definite progress may be expected in the early post-war period.

Increasing pressure is coming from career physicians in public health for a certification, or specialty board rating. Whether this should be provided by the A.M.A., the A.P.H.A., or some other responsible body is a moot question. The Specialty Board for Internal Medicine now offers a certificate in public health, but none have applied for examination. The American Association of Industrial Physicians and Surgeons is considering certification of its own members. The Committee on Professional Education will continue to study the question in

the light of the interests of all members of the A.P.H.A. and may soon have some specific recommendations to submit.

Finally, the Committee on Professional Education is not unaware that professional competence is related to remuneration. While merit brings its own reward, that reward has more often been spiritual than edible in public health careers. If we are to assure sufficient competent personnel to meet the needs of the country, it is evident that remuneration must be increased. Some preliminary inquiry has been made of the officers of the twelve sections of the Association to see if they would be interested in assisting with a study of this problem. There was unanimous interest, but general agreement that such a study would need central direction. Under existing conditions in the central office it is impossible for our depleted and overworked staff to undertake such direction at the moment. As soon as staff becomes available a study will be launched to ascertain present earnings of public health professional personnel

compared with the earnings of similarly trained colleagues in their locality.

SUMMARY

Public health work is a specialty requiring additional postgraduate training in various professional fields: medicine, dentistry, engineering, bacteriology, nursing, and the like. For those who carry responsibility for the protection of human life and health, the best of training is none too good. Their responsibilities are heavy. Their success means saving lives. Their failure means needless loss of life. A public health career is attractive but has some disadvantages. As never before, we need able young people in public health. They will be forthcoming when we succeed in elevating professional standards to the point where the profession is recognized and is worthy of the support it needs. When career men and women in public health are well selected, well trained, and well rewarded as to security, remuneration, and opportunity, then public health will begin to fulfil its great responsibilities.

Landmarks of 1944

Medical Care in a National Health Program *

HUGH R. LEAVELL, M.D., DR.P.H., F.A.P.H.A.

Director of Health Louisville-Jefferson County Health Department; Professor of Public Health, University of Louisville School of Medicine, Louisville, Ky.

WHAT is the particular significance of the material presented at this Special Session of the American Public Health Association? At a number of previous meetings admirable discussions of medical care have been presented and much interest aroused. However, after those other discussions it was not possible for us to return to our home communities and tell our coworkers that the American Public Health Association had expressed itself clearly on the problem. We knew very well how certain outstanding members and even officers of the Association felt on the subject; but they were not authorized to express any opinion other than their own.

Some other professional organizations have expressed themselves with considerable force, in many cases with considerably less factual information and experience upon which to base their conclusions than are available to this Association today. There are several important reasons why our Association should adopt a concrete policy on medical care. Many of our members hold positions of trust and responsibility in their communities; they not only carry weight, but they have weight—perhaps we have waited long enough! The pub-

lic health profession has the confidence not only of the public, but of the professions which render medical care. Can it be that we have feared we might lose some measure of this confidence if we as a group expressed ourselves on such a controversial question as medical care? or have we failed to enunciate this group expression simply because we thought insufficient data were at hand on which to base logical conclusions? Public health workers know the medical care situation in their respective communities perhaps better than any other group, and they should be in a peculiarly advantageous position to say whether our system is functioning as well as we may reasonably expect it to function. It seems logical to suppose that the people of this country would really like to know what our group thinking is on this important subject. Certainly, our officers should be supplied with some principles to guide them in discussing the matter before legislative bodies considering action to implement suggested medical care plans.

At this session we have heard various phases of a report on medical care prepared by a special committee of the Association which has been working for a number of months, and the report was published in the December JOURNAL. This report has certain special significance. The committee members who

* Presented before the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

gave it birth, with considerable blood, sweat, and some tears, had in mind throughout their discussions that they were working on a statement to express the ideas of the Association on this important subject, avoiding the use of weasel words. For this reason, it expresses not the viewpoint of any one member of the committee, though some members contributed more than others—my own contribution was one of the least—but is a composite picture representing what the committee feels the Association should say on the subject of medical care at the present time.

What are the unique features in the present statement which differ from statements previously made by other interested groups? What has this statement got that others have not? There are a number of features of special importance.

For one thing, the committee has had the benefit of time and experience not available before. It has been able to observe reactions to other reports and suggestions from various sources; and the committee members hope that they have been able to avoid some pitfalls encountered by earlier reports. Of considerably greater fundamental importance, this statement represents the public health point of view, with a stronger emphasis on the preventive aspects of medical care than has been expressed in most other statements. Public health workers have watched the benefits of preventive activities with their own eyes, and know what results may be expected from their application. Many plans for medical care in other countries have failed to come up to expectations because the importance of preventive medicine was overshadowed by a desire to get under way with the pressing problems of medical care for those already ill. We must not make this mistake.

Another feature of the report which gives it peculiar value is its emphasis on

the importance of administration. Workers in the health field fully realize that even a good plan will not function effectively unless well administered; they are experienced in administering service to their communities. It is probably fair to say that the people repose more confidence in the public health phases of government than in any other branch, and that we are entrusted with greater potential authority than other governmental departments. Since we have this background of administrative experience and public confidence, the committee feels that public health workers are shirking their duty if they fail to assume their full share of responsibility in the administration of such medical care plans as may be developed in this country. And it is the strong and definite feeling of the committee that this responsibility involves more than simply standing on the side lines in an advisory capacity. It involves actually doing the job. Your committee has recognized that the administrative problem is enormous, and that relatively few individuals are presently trained to handle the job effectively. For this reason the suggestion is made that we immediately set about the task of remedying this deficiency and that we set up training programs to fit us to do the job well.

Undoubtedly many of us have feared that our preventive activities, so fruitful in the past, would suffer should we assume administrative responsibility for medical care. Can we truthfully say that this has always been because we had the community welfare foremost in our thoughts; or was it sometimes because we feared our pet programs and projects might suffer if judged side by side with the broad problem of medical care? Have we not emphasized too much the importance of saving a few lives from diphtheria, and closed our eyes to what might have been done in

reducing morbidity and mortality from heart disease? Is it not wholly reasonable to assume that if a single agency plans and administers the entire public health program inclusive of medical care, that such an agency can readily determine where its expenditures of money and energy will prove most beneficial to the community?

Because of present deficiencies in trained personnel and in facilities, the committee is fully aware of the fact that any comprehensive plan of medical care can become effective only over a period of time. Incidentally, there was a good deal of difference of opinion among the committee members as to how long this period of time would need to be, though all agreed that it need be not more than ten years. While we realize that a comprehensive job cannot be done at once, unless some substantial progress is made shortly the ultimate goal becomes ever more distant.

In its recommendations for the construction of additional facilities necessary for providing proper medical care, the report takes full cognizance of the value of including such preventive services as are available in health centers, in the construction program along with hospitals and other buildings. And the need for careful planning of construction is fully appreciated. Unless a state program is fully detailed, local projects would be approved only if they fitted into the broad gauged plan for providing all the people with the essentials necessary for their adequate care.

Another important feature of the plan which has been presented is the recognition of the importance of state and local governments in the overall picture. It seems absolutely essential to your committee that the federal government be drawn into the plan for medical care. Otherwise, there is no effective method of equalizing the financial

burden so that the less wealthy sections of the country can have the type of service we all know to be essential in a good program. There is also great value in having the federal government's assistance in fixing standards and in providing technical assistance. In the opinion of the committee, however, state and local governments should play just as important a rôle in the plan of medical care as they are able to do, both in financing and in administering its provisions. The effectiveness of the job will finally depend in large measure on how well the local problems are solved, and how well pleased the local people and the members of the local medical professions are. If they know that some member of their own community, someone whom they can see, has responsibility for what takes place, they are going to feel much more secure about the whole thing.

The importance of constant evaluation and research is fully appreciated. We do not yet know all the answers, and can profit fully by our experience only if it is critically evaluated. Obviously, much additional knowledge is required before disease prevention can assume a major rôle in the control of many diseases responsible for a great portion of illness and many deaths.

Your committee has reemphasized fundamentally important points regarding the quality of medical care and other features of a broad plan of medical care. There has been no attempt to develop the ideas in minute detail. We must first reach agreement on general principles. The logical next step might be for our Association to concern itself with a more comprehensive consideration of the particular phases of the problem on which we are especially qualified to speak authoritatively, such as the administrative features, plans for construction, and for the integration of preventive services with the diagnosis and treatment of disease.

Landmarks of 1944

Housing and Public Health *

C.-E. A. WINSLOW, DR.P.H., F.A.P.H.A.

*Chairman, Committee on the Hygiene of Housing, Professor of Public Health,
Yale University School of Medicine, New Haven, Conn.*

IN a recent issue of the *American Journal of Public Health*,¹ Dr. Charles V. Craster, Health Officer of Newark, New Jersey, has presented convincing evidence of the fact that "Slum clearance is a public health problem of major importance in all large cities of the United States." It was recognition of this problem that led to the appointment of the Committee on the Hygiene of Housing in 1937.

The first challenge which the health officer must meet in this field is the negative task of removing—or improving—every slum dwelling within his jurisdiction which presents defects of sanitation, obstacles to hygienic living, hazards to safety, which menace the health and well-being of its occupants. This is as clearly a part of his official duties as the control of food handling establishments and the elimination of foci of epidemic disease.

To accomplish this part of his task, the health officer needs reasonably accurate and reasonably simple methods of appraising the quality of a given dwelling unit. The Committee on the Hygiene of Housing has been primarily occupied during the past three years in the preparation of essential tools for such a purpose. This task has now been completed. The Milbank Memorial Fund will, next spring, publish for the

committee a detailed survey procedure and appraisal forms by which both the individual dwelling and its neighborhood environment can be graded on a system of penalty scores which give a clear and objective quantitative picture of its general quality from the standpoint of health, and of the specific fundamental deficiencies involved. Where appraisal of both dwellings and environment is desired, coöperation of a city planning agency is desirable for the environmental survey, but the dwelling appraisal alone gives very substantial results and can be carried out by a health department staff.

Dwelling units can be inspected under this method at the rate of two to three per hour, by regular health department inspectors. Scoring and analysis of the field results can be carried out under reasonable supervision by any competent clerk. The cost of a dwelling survey, excluding supervision or other overhead expense, can be figured at one man-hour or less per dwelling unit. This is field and office time combined, and provides for systematic analysis of the results as a guide to action. Sampling a large problem area makes possible significant results at strikingly low cost. A sampling survey was recently made in one area containing over 12,000 dwelling units for a total cost of about \$4,000, covering both dwelling and environmental conditions.

These procedures have been fully

* Presented before the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

tested in numerous cities of the East and Middle West. They have been officially used in Portland, Me., and New Haven, Conn., and are scheduled for adoption by one state housing authority and several major cities as soon as the procedures are published. The method has been endorsed or actively sponsored by officers of the U. S. Public Health Service, the National Housing Agency, the U. S. Chamber of Commerce, and various housing and planning organizations. It represents a contribution of the A.P.H.A. which—in its limited field—corresponds to the progress in evaluating administrative health department procedures accomplished by the Committee on Administrative Practice and described by Dr. W. L. Halverson in this issue.

Having identified the particular qualities of bad housing present in a community, the next problem is to decide on a program of administrative control. The legal problems involved in such control have been the objective of a special subcommittee of health experts and experts on administrative law, under the chairmanship of Charles S. Ascher. Polls of local officials and studies of existing ordinances have revealed astonishingly chaotic conditions. The codes now in existence are, in some respects, unduly rigorous; they are frequently conflicting; and they omit any reference to many of the important health problems involved. The committee is considering such major problems as the extent to which housing standards should be crystallized in formal legal enactments, and how far they should be formulated under a more general delegated authority. It is studying the question of the best location of the power of control, in health departments, building departments, police and fire departments, and the correlation between the agents of these—and other—public authorities inter-

ested in this field. The plan developed under Dr. Craster's leadership in Newark by which the Health Officer is appointed as Supervisor of Rehabilitation of Dwellings is a most significant contribution to our thinking in this field.

It is hoped that Mr. Ascher's subcommittee may present for us: (1) a complete exposition of the health factors in housing which should be covered by protection under the police power, with a statement of the objectives to be sought under each topic of control, and with quantitative recommendations as to legal standards, (2) a full statement of the general principles underlying effective assignment of regulatory powers to the branches of local and state governments (distribution or concentration of responsibility, limits of legislative delegation, etc.), together with a critical review of progressive administrative and enforcement practice in selected American cities and states; (3) recommended drafts or skeletons for standard legislative acts dealing with general and special problems of housing regulation. These last should not be the rigid type of "model law" which is so often scissored-and-pasted from one community to another. They must be framed so as to encourage intelligent variations to meet the local need.

It cannot, however, be too strongly emphasized that the rehabilitation of existing bad housing is limited in its applicability by fundamental economic laws; and that the demolition of existing bad housing does not help the unfortunate tenants unless they have good housing into which they can move. The negative approach of condemnation must go hand in hand with the positive task of rebuilding our cities and our countryside. Therefore, the Committee on the Hygiene of Housing has undertaken as its major task, for the next two years, the translation of the *Basic Principles of Healthful Housing*

(first issued in 1938) into concrete standards of performance for the home of the future. Four strong subcommittees have been organized as follows: one on environmental standards, under Professor Frederick J. Adams; one on standards for construction and fundamental equipment, under Henry S. Churchill; one on standards for installed household equipment, under Helen W. Atwater; and one on standards for space design and occupancy, under Clarence W. Farrier.

It is our hope that from the work of these subcommittees will emerge concrete and fundamental standards of those ends which must be attained—in the location, construction, equipment, and occupancy of the home—which will insure the safety and the physical, mental, and social health of the individual in the conduct of his own life and in the joint performance of family and community functions. "Livelihood," in the broad sense, must be our objective. We are assured that the formulations of our committee will receive the cordial support of health and housing authorities, of official regulatory bodies, and of the social agencies concerned. We hope to gain similar acceptance from private industries and investing agencies interested in the housing field.

This task, I believe, our committee can accomplish. What gives me grave concern, however, is the time factor. During the last few months, the post-war world—which we have conceived as a vague future—is becoming almost an immediate present. It is somewhat like the sensation produced by a motion picture, which a distant view suddenly shortens to a close-up. And this post-war world is more enigmatic than Greer Garson or even Greta Garbo. In this post-war period, we are told that we must build a million or more new homes a year; and some of the most powerful industries in this country are planning to turn out prefabricated

houses by the hundreds of thousands. It will be tragic if this outburst of building turns into an epidemic of new potential slums.

Above all, I would urge you as public health workers to remember that the problem of post-war housing cannot by any possibility be solved without continuation of the general policies of the U. S. Housing Act of 1937. The fundamental problem has always been that a substantial proportion of our population has earned an income too low to permit the payment of a rental which will provide adequate and decent housing. No program of slum elimination or condemnation and rehabilitation—no standards for new construction—can provide this section of our people with the housing which they need. The only possible solution lies in federally subsidized low-rent housing for those who cannot pay an economic rent. Lowered construction costs due to technological advances and increased incomes due to an anticipated post-war boom, will reduce the proportion of our population which will need such assistance. It may be hoped that we shall no longer think of "a third of a nation" in this class; but the most optimistic predictions (which remain within the field of economic and engineering possibility) cannot possibly visualize less than one-fifth of our people who will be in need of housing subsidy.

The more romantic and less scrupulous representatives of real estate interests have, however, launched a national campaign to eliminate public housing from the field of national policy.² They cannot turn back the tide of world progress in the direction of social responsibility. They can perhaps delay it to an extent which will create class conflicts that for a time may menace the stability of our national life. The soldier who returns from Africa and Europe and the South

Pacific will not accept his return to a city slum or an Appalachian shack as the democracy for which he fought.

The continuation of our national policy of public housing must be one of the most essential objectives of public health and of sound statesmanship in the post-war world. In the conflict against this policy, provoked by selfish vested interests—under the banner of a shoddy imitation of the flag of individualism—the health officer must be

prepared to play an honest and a forthright part. He knows the facts; he knows the only remedy. For the housing of his own spirit, he cannot resort to the Ivory Tower of indifference.

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Landmarks of 1944

Association Impacts—Past and Present *

LOUIS I. DUBLIN, PH.D., F.A.P.H.A.

Second Vice-President and Statistician, Metropolitan Life Insurance Company, New York, N. Y., Assistant to the Chairman, American Red Cross

I AM glad to have this opportunity to review the impacts of the Association during the last twenty years. As Treasurer, and as a member of the Executive Board during this period, I have seen our Association grow, improve the character of its services, and increase in power. It has been a fine experience altogether to watch the procession and on occasions to be a part of it. The satisfaction has been all the greater because step by step, I have seen the goals achieved which were outlined by my former chief and predecessor as Treasurer in the Association, Dr. Lee K. Frankel. He was a man of great vision and yet the high ambitions which he had for the Association have proved to be altogether modest.

Thus he always talked in terms of an Association which would be wholly professional in character. Twenty-five years ago, there was a goodly proportion of our limited membership which was far from professional. When in 1922 we adopted the new Constitution and set the requirements for memberships and the high standards for Fellowship, we took a long step toward making the society truly professional. That has increasingly been the policy

of the Association throughout the intervening years.

In spite of the higher standards for membership, our Association has grown beyond all expectation. Twenty years ago there was a total of 3,139 Fellows and members. Today, there are almost three times as many, of whom 1,570 are Fellows. I need hardly point out what a change has taken place during these two decades in the development of career service among our members in all the specialties. Nor have we sat idly by, benefiting from the current changes. Rather have we participated in and encouraged all of the steps which have increased the effectiveness of our members. They are not only far more in numbers, but of much higher quality. They are a true reflection of the extraordinary change which has come over the public health movement in the United States during the period.

As Treasurer I must say a word with regard to the finances of our Association. Finances are not always a necessary evil; they can be the very essence of an organization like ours and afford a good index of an association's vitality. Twenty years ago our annual budget was \$77,000. This year it is nearly \$230,000. We now have 33 Sustaining Members from whom we receive contributions totalling more than \$6,000 each year. We have 215 Life

* Presented before the American Public Health Association at its Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

Members. In 1944, with the fiscal year having four more months to go, membership income has already passed \$51,000, which substantially exceeds the total income for the entire year 1923. We now have total net assets in excess of \$100,000 safely and profitably invested.

As might be expected under the circumstances, our office organization and facilities have grown. Their development has been commensurate with our increasing resources and our increasing responsibility. It was a good many years before the Association developed a full-time staff and an organization adapted to the task of year-round operation. Twenty years ago, the total number of staff members in the office was 12. Today, under the inspired leadership of Dr. Atwater, we have an extraordinarily effective organization of 42 persons functioning smoothly and effectively. Through the patient and faithful coöperation of our leaders, and especially of our Executive Secretary, the Association is increasingly and favorably known throughout the world.

An excellent index of the vitality of our Association is the number attending our annual meetings. In 1924, there were 894 registered; this year, in spite of every effort to keep the attendance down on account of war restrictions on travel, we have a total of 3,984. In 1924, we had 9 sections; now there are 12. Also in that year there were 3 affiliated societies and branches; now there are 27. Then, the circulation of the *Journal* was 4,000; now it is over 12,000. The wartime program of this meeting of the Association illustrates very well the greatly broadened scope of the Association. One might profitably compare this program with the one twenty years ago. At the 1924 meeting, our program included 74 papers; this year the number has risen to 209. Twenty years ago, who would have conceived that interest in cancer from the point

of view of public health would be sufficient to warrant an all day symposium solely devoted to that subject? Yet this and other equally important new fields are now receiving our constructive consideration.

The figures that I have given you thus far are valuable as quantitative measures of the growth of the Association as a whole. But these numbers fall far short of telling the story, because the significant growth of the Association is in the intangible realm of prestige and standards. The Association has exerted its greatest influence and rendered its most outstanding services primarily through the operations of three standing committees. These are the Committee on Research and Standards, the Committee on Administrative Practice, and the Committee on Professional Education. These committees have made their impress on the whole public health movement. Thus the Committee on Research and Standards has produced and kept up to date, with the aid of the Laboratory Section, such basic reference works as the well known volumes on *Standard Methods for Examination of Water and Sewage* and for *The Examination of Dairy Products*. The new edition of the volume on *Diagnostic Procedures and Reagents* has come through these channels. Many of these procedures have become official with most state and federal health agencies and are literally world-wide in their acceptance, reflecting as they do more than 40 years of work of Association members.

I want particularly to refer to the committee's report on *The Control of Communicable Diseases*. At this very session we have approved a new edition—the ninth—continuing the series first published under Association auspices in 1916. Since that date, well over 250,000 copies have been distributed. You know that this volume has long been official with the United

States Public Health Service. Some of you heard yesterday a distinguished representative of the British Ministry of Health say:

"Hard pressed as the medical staff of the Ministry of Health is at the present time, Sir Wilson Jameson, our Chief Medical Officer, was so anxious to obtain uniformity as between America and England in the control of infectious disease and to reap the benefit of reciprocal exchange of knowledge between these countries, that he sent two medical officers to New York specially in order to meet the members of your committee responsible for this report, with the view of discussing the differences in epidemiological practice between the two countries. We obtained the views of the Scottish Board of Health, the Board of Education, the Society of Medical Officers of Health, the Association of School Medical Officers, and a large number of experts. . . . In our enquiries in England we were struck not only by the great value attached to this brochure by medical administrators, but also by the wide extent to which it was already used as a guide in the control of communicable disease in our own country." We look forward to the day when this report will also be official in Great Britain and in other countries.

Furthermore, as soon as they receive the final draft of the new report on *The Control of Communicable Diseases*, translators will immediately begin turning it into Spanish, Portuguese, French, and other languages. Its use will soon cover the world. What a compliment to the Association!

Of equal value has been the work of the Committee on Administrative Practice. I have no hesitation whatever in saying that the appraisal methods developed by the committee have truly revolutionized public health practice in the United States and in some other countries as well. You have heard the

review of the work of this committee by Dr. Halverson, the new Chairman. You know that for more than ten years this committee sponsored and directed the Health Conservation Contest and the National Health Honor Roll. These activities have now been recast into a National Reporting Area which will serve even better in the coming days to promote advances in administrative procedures in the various divisions of the official health agencies. At this juncture, it is fortunate that the work of this committee is in the hands of a young and effective state health officer, such as Dr. Halverson. The Executive Board has great confidence in his leadership. Every great step forward in the past was made under such leaders as Winslow, Emerson, Vaughan, Wolman, Bishop, and Leathers. I believe that we have giants today also in such men as Halverson, Shepard, and Maxcy.

The third standing committee I have cited—that on Professional Education—has now published a total of 13 official reports on the education and experience qualifications of public health workers and has half a dozen additional reports maturing toward Association approval. These documents are of inestimable value to civil service and merit system agencies in developing qualifications for appointment and in selecting candidates for positions in public health. Thus, the Association, through this committee, will help to determine the quality of career service in public health for many years to come. The impact of the Association in this respect is particularly felt through its Merit System Unit which prepares examination material for states, to be used for professional personnel. This represents the first source of modern examinations available for the selection of candidates in these fields. Already one hundred examinations have been prepared for 19 states.

The operation of these standing committees involves not only lavish service from the members of the respective committees, but calls for sizable sums of money to cover the necessary expenses of full-time staff members, travel, publication, etc. Grants for the conduct of this most important work have come in generous measure from the Commonwealth Fund, the Kellogg Foundation, the Milbank Memorial Fund, the Josiah Macy, Jr. Foundation, the J. P. Hood Educational Trust, and from some of the larger life insurance companies. I mention this fact not only to pay tribute to the generosity and vision of the directors of these agencies who have seen in the work of the Association something eminently worth while, but also to indicate that the operations of the Association have had their impact on the Foundations in opening up to them new and valuable spheres of interest and activity.

The impact of the Association has not been limited to the Foundations. It has also spread over into the programs and activities of our fellow national organizations, most of which are housed at 1790 Broadway, and are members of the National Health Council. It is difficult to appraise the value of the presence of a professional society like ours in the midst of specialized and largely promotional organizations like the National Tuberculosis Association, the American Social Hygiene Association, the National Committee for Mental Hygiene, and others which are more closely associated with the public than we are. But, in any case, our influence has been altogether good. Our techniques of evaluation of health services, our survey methods, and the standards we have set up for professional service have all of them infiltrated into the daily operations and routines of our neighbors and associates.

And this, I believe, has been a very

real contribution to the public health movement in America. In addition, our Association has been a source of strength to the National Health Council itself. Let me mention, for example, one recent project of the Council which stemmed very largely from the deliberations of our own organization. Discussions in our own Executive Committee on the subject of the relationship of voluntary to official health agencies led naturally to the recommendation to the Council that a study be made of the field of voluntary health work. It is a pleasure to announce at this time that after three years' work, a well considered report is in the hands of the committee which is guiding this effort of the National Health Council. I may say that Dr. Atwater was a mountain of strength in the early planning days when this project was launched. The late Director of the Study, Selskar Gunn, was a former Secretary of our Association and brought to his work the best traditions of our organization. It is sad to think of him so prematurely out of the picture on the eve of the publication of this report. Let us hope that when this document is fully implemented and developed into a constructive national program, the results will prove a monument to this fine public health man.

We have spoken of the conferences between the Association and British representatives which are reflected in the new report on communicable disease control. We have spoken of the steps taken to make available this and other reports for international use through translation and wide publication. There are still other outreachings by the Association into the international field. Professor Winslow has told you of the leadership in the hygiene of housing which has grown out of the activities of his committee during the last eight years. The linkage between this committee of ours and the work of the

Health Organization of the League of Nations is direct and vital. When the day comes again for international collaboration in housing, the Association will be able to report definite progress accomplished here even in wartime. Perhaps this will prove the most significant contribution which the Association has ever made in the hygiene of environment.

The Association is also making its mark internationally in plans for the rehabilitation of war-torn countries abroad. It was seven years ago, when the Association met in New York City, that the Honorable Herbert H. Lehman, then Governor of New York State, set before the Association at its General Session his concepts of professional leadership in public health and how this priceless treasure was to be protected against political manipulation. Today Governor Lehman, as you all know, is serving as the Director General of UNRRA. There he is putting into effect on an international stage the policies and principles which he declared to us in 1937 and which he so signally illustrated in his administration of this state. The Association welcomes the opportunities which have been afforded to it to help in finding the staff required for this gigantic undertaking. In this it has made use of its familiarity with the thousands of workers having special qualifications, and has acted as a clearing house between those who seek such overseas service and the employing agencies.

As other examples of the international impact of this professional society may be cited the expanding contacts with our friends from Latin America. It is now more than 40 years since the Association has officially included Mexico and Cuba in its sphere of interest, but never before has there been such substantial representation of our colleagues from countries to the south as in the last three years when about

200 guests from these countries have attended our annual meetings. We are honored today in their presence at this meeting and in the presence of visitors from Great Britain, from Norway, from China, and from other distant places. Thus we recognize in a tangible way that those things which we have in common are more important than those wherein we differ. Such leadership as that from Dr. de Paula Souza of Brazil, who this year is our Vice-President, illustrates how much we have to gain by recognizing our common needs.

Another new and significant type of our collaboration with our neighbors to the south has been the organization recently within the Association of the Committee on Professional Relations with Latin America. We celebrated Pan American Day last December by issuing, on behalf of the Association, a *Health Charter for All the Americas*. To this we have received most courteous responses. They must be seen to be appreciated. We have welcomed scores of visitors from Latin America into the Association through Honorary Membership and have sought to meet and assist those who were seeking information and training in North America. Conferences during the year with those well informed on health conditions in this hemisphere lead the committee to believe that the experience of this Association can be valuable to our Latin friends, for organizations like our inclusive society of all types of public health workers are seldom found south of the Rio Grande. We shall ever seek to find new channels of service to them, perhaps implementing in a very real way the services which the Pan American Sanitary Bureau and the Office of the Coordinator of Inter American Affairs offer on an official level. We shall encourage the translation and distribution of our publications. One in particular, *Standard Methods for the Examination of Dairy Products*, in

abridged form is now in manuscript and ready for the printer, thanks to co-operation between our Laboratory Section and specialists in Mexico and Cuba like Dr. de la Garza Brito, Dean of the School of Public Health in Mexico City.

Nevertheless, the Committee on Professional Relations with Latin America recognizes that it is only at the beginning of the task of interpreting the Americas to each other and that the future must hold even greater opportunities for coöperation and mutual assistance. We shall stand ready to assume our share of effort as the developing plan becomes more clearly defined.

To summarize, I would say that the Association has had an extraordinary career. The secret of our success has been that we have preserved and strengthened the professional character of our organization. For that reason our contacts have grown and our influence has constantly deepened and

strengthened. In the future, I see a much larger and even more powerful organization reflecting the expansion of public health work, both official and voluntary. It is inevitable that increasing numbers of adequately trained health officers, epidemiologists, statisticians, health educators, and others in the field shall join the ranks of our organization. Our function in the future as in the past will be to set standards of practice, to stimulate and direct more adequate training and to serve as a platform for the clarification of ideas and programs. To an increasing degree we must act as the analyst and the constructive critic in our field. If we do these things and if at the same time we continue to serve our fellow national agencies which are in direct contact with the public, we shall be well on the way to our goals of wiping out preventable disease and bringing the health of our people to the highest possible level.

IN addition to the 6 papers in this Symposium which are printed herewith, there were papers in the original Symposium on "Local Health Service—A New Approach to an Old Problem," and "New Information on Communicable Disease Control." In view of the fact that both of these subjects relate to reports shortly to be published under the auspices of the Association, it has been thought well by Dr. Haven Emerson, Chairman of the Subcommittee on Local Health Service of the Committee

on Administrative Practice, and also Chairman of the Committee on Communicable Disease Control, to defer these reports until the definitive manuscripts are available, when their appearance will be announced in the *American Journal of Public Health*. A volume on *Local Health Units for the Nation* will shortly be published by the Commonwealth Fund for the Association and the new edition of the report on the *Control of Communicable Diseases* is about to come from the printer.

Making Food Handlers Health Conscious*

H. A. MORGAN, JR., M.D., M.P.H., THOMAS B. MUSE,
AND ALBERTINE McKELLAR †

*Director, Camp Forrest District Health Department; Principal Sanitarian, Camp
Forrest District Health Department; and Health Education Consultant,
Camp Forrest District Health Department, Manchester, Tenn.*

FOOD control, which has always been a definite public health problem, has only recently come into being as a public health responsibility in Tennessee. Food control is broadly delineated into supervision of nutrition and supervision of food preparation. The latter is further defined for discussion as supervision of food processing and the sanitation of food handling. It is this last small portion of the vast subject of food control that has developed new importance and with which our department has been primarily concerned.

The problem of controlling food sanitation has two broad approaches. It may have been thought in the past that the question could be solved by legislation and enforcement, but in our experience this has failed to achieve satisfactory results. The alternate method, frequent inspection, and education, according to our experience, is the only method paying lasting dividends. We do not propose this as the panacea of all ills but present our experience in that field with an estimation of the results.

With the inauguration of the Second Army Maneuvers in Middle Tennessee,

the sanitation of food handling developed as a public health responsibility of primary importance. This importance was emphasized by five factors:

1. The large number of troops served in public eating places
2. The increase in war workers eating out, due to both husband and wife working in defense plants
3. The number of transients either directly or indirectly related to the war effort
4. The necessity for adjustment of small establishments to be able to handle large increases in patronage
5. The large number of novices in the business of feeding the public

In order better to meet the problems posed by this overwhelming demand on public eating places, as well as other public health problems of the maneuvers, a district health department was organized by the Tennessee State Health Department in the area immediately surrounding Camp Forrest. Six counties with organized health units were combined with one unorganized county into one large district with about 113,000 population. Since the district organization is unique in its arrangement and lends itself well to the solution of the problem to be solved, it will bear a brief description. A district director is in charge of the program planning and execution for the district as a whole, assisted by a nursing supervisor, sanitation supervisor, health

* Presented before the Food and Nutrition Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

† Now with North Carolina Department of Public Instruction, Raleigh, N. C.

educator, venereal disease investigators, and clerical supervisor. The six organized counties are divided into three two-county units, sharing the services of a health officer and a sanitarian in each of the two counties with nurses and clerks in each county. The existence of the district staff in addition to the regular county staffs is one of the important factors in making our approach to the control of food sanitation possible.

The problem of controlling food sanitation was a new one to the health department in our area. Previously, this responsibility rested entirely with another branch of our state government and was operated on the basis of law enforcement. The dissatisfaction of Army officials with the results of this plan in the Camp Forrest area necessitated a change. The background of fear in the minds of the owners and operators occasioned by stiff fines for infractions of the code was one of the major obstacles which we faced after the assumption of our new duties. In order to overcome the resentment of inspection visits, a series of food handler schools was organized. This was proposed to meet two needs, first, to make the food handlers health conscious, and second, but no less important, the awakening of the operators to a spirit of coöperation born of confidence that the inspector was interested in helping them. There have been several types of food handler schools held throughout the country and we can conceive of no plan that might be universally adopted. Each must be developed to fit the specific needs of the area in which it is to be held, and must stand or fall, not on the agenda which is proposed, but on the results which are obtained. Our plan is based on the needs of our area mentioned above.

In order to prepare a unified method of instruction in the sanitation of food handling throughout the district, a

school staff was organized, composed of a medical officer, the district director; a sanitarian, the supervising sanitarian; and the health educator. This achieved the desired effect of having a trained staff that, through the repetition of the course in various centers, might improve on the technique of instruction and interest holding which would have been lost by the use of different groups of instructors at each center. Local interest in having a course was stimulated by the local sanitarian on his routine inspection visits, and by the reports from centers which had participated in the course. When sufficient requests had been made to the local sanitarian to demonstrate a genuine interest in the course, the question of the feasibility of the course at a certain time was cleared with the district staff and the local sanitarian proceeded with the preparation of the details of organization of the class. A meeting was held with the owners and operators and they decided the time and place of the course, which was always held in the dining room of one of the eating establishments, and at a time during working hours for which all establishments closed.

Following this, with a sufficient interval of time to allow for clearing of all arrangements and publicity releases, the class was inaugurated. Attendance was entirely on a voluntary basis and the response was amazing. All the details of administration of the course, time, place, seating, registration, and procurement of volunteer workers, were the responsibility of the local sanitarian. After a brief welcome and an introduction of the school staff, the local sanitarian turned the course over to the medical officer in charge. This plan has the advantage of freeing the instructors from the details of organization, leaving these things to the local sanitarian whose frequent contacts and familiarity with the food handlers of his area make

him the logical person for this task, and it also relieves the local sanitarian of the difficulty of preparing the curriculum for the course and assembling the various demonstrations and visual

aids which are already easily accessible to the district staff.

Registration blanks (Illustration 1a) are distributed at the meeting of the local sanitarian with the owners and

Illustration 1a—Registration Blank

Food Handler's Course

Camp Forrest District Health Department

Where do you work:

Name:

Nickname:

What is your local address:

What is your home address:

Draw a circle around the type of work you do: Manager, wait tables, cook, wash dishes, assist in kitchen, busboy, cashier.

Illustration 1b—Certificate of Attendance

(Front)

CAMP FORREST DISTRICT HEALTH DEPARTMENT

Manchester, Tenn.

CERTIFICATE OF ATTENDANCE

.....
Has Completed a two-session Training Course for Food Handlers.

.....
Place

.....
Prin. Sanitarian

.....
Date

.....
Director

(Back)

LEST YOU FORGET

Food Handler

1. Your job is vital—health protection depends upon YOU. Remember those disease germs—enemies on the home front.
2. Your ONE careless slip can cause illness—even death! Watch your hands—keep them clean with nails short—no hang nails. Always cough or sneeze into your handkerchief—report illness to manager promptly.
3. Your cooperation (the way you do your job) is more important than good equipment!
4. Your good health and personal cleanliness are valuable to YOU as well as to the management.
5. Your efforts can make this Area known for its clean, protected places to eat!

managers, and are completed in advance of the first session. Volunteer workers serve as receptionists, collect the registration blanks, and create an atmosphere of friendliness. The food handlers' registration blanks are used to gain a perspective of the type of food handler group, whether local or transient, and the number and proportion of establishments represented. The registration blanks are then arranged to form a class roster to check attendance for the second session for the awarding of the certificate of attendance (Illustration 1) which is given on the basis of presence at both sessions. The food handlers' registration blanks are made a part of the permanent office files and are often valuable for later follow-up and epidemiological investigation.

The course is divided into two sessions of 2 hours each. The first session is summarized as the "Why's of Food Sanitation" and the second as the "How's of Food Sanitation." Each session is divided into eight phases for the purpose of variety to develop interest and hold attention. The first session briefly outlined is as follows:

Session 1

I. Welcome—medical officer

A. Health department recognizes food handlers as a vitally important group of workers for health protection—really war workers.

1. Especially in war maneuver areas such as this:

a. Feeding soldiers is a tremendous responsibility. Since men get every known protection at camp, outside camp they are in our hands and deserve the best.

b. Many more civilians are crowding eating establishments—the establishments are already struggling under handicaps of:

- (1) Food shortage
- (2) Equipment shortage
- (3) Turnover of personnel

2. The fact that diseases are *known* to be spread by food is explained.

3. Points out that food-borne diseases are increasing and food-borne deaths are up.

4. Importance of food handlers in preventing illness—even death—is stressed.

a. Customers can bring or catch a disease.

b. Food handlers must protect themselves and these customers.

B. Reasons for short course:

1. To explain the *right* way to handle food and to give simple, practical, common sense reasons that the right way is right, and why the right way is the only safe way.

2. To show *how* diseases are spread and how the careful food handler can prevent disease and protect the health of the customer.

3. Two methods of supervision—education versus legislation. The sanitarian is a teacher not a cop.

C. Description of course:

1. Course consists of two sessions—one today and one tomorrow.

2. Certificate of Attendance—tomorrow members must give registrars their names and place of employment, to be given a certificate. Be sure that everyone is registered.

3. Bring written questions for question-box tomorrow.

II. Medical officer presents sanitarian—sanitarian describes the public enemies that endanger life wherever food is prepared. Bacteria—the harmful germs or "Bad Betsies" are described at length. Food is emphasized as most suited for their growth. Actual germs are demonstrated under a microscope.

III. Medical officer presents health educator as the "famous bug catcher." Health educator explains culture plates—gets fingerprints, cough, hair, and floor dust on Petri dishes.

IV. Sanitarian describes food-borne diseases from the food handler's point of view. Medical officer comments and summarizes, bringing in medical aspects of diseases that are food-borne.

V. Sanitarian explains prevention through protection—illustrates with actual photographs—stresses breaking the link of passage by killing or disabling germs through:

A. Sanitization

- B. Refrigeration
- C. Good housekeeping
 - 1. Dishwashing
 - 2. Storage
- D. Rat and fly control.
- VI. Film is shown to demonstrate how disease is spread.
- VII. Medical officer asks health educator to describe next session.
- VIII. Medical officer stresses tomorrow's session, same time, same place. Repeats that attendance necessary for certificate. Requests questions for question-box be brought next day.

The second session is usually held the day following session 1. Too long an interval between might interrupt the continuity, and the rapid turnover of food handlers would prevent the completion of the course from the point of view of the individual. At this time, certificates of attendance are presented at the registration desks as the workers enter for the final session. The certificates are prepared in advance, except the name of the person, which is filled in by the registrars with practically no time consumed for this procedure. Again a brief outline of the program is sufficient to illustrate the schedule followed:

Session 2

- I. Medical officer welcomes workers to second session and compliments those present who will complete course.
- II. Medical officer asks sanitarian to review yesterday's session and show the "bug traps," demonstrating actual colonies from previous contacts.
- III. Medical officer reminds group:
 - A. That they have seen germs, and have been told how these cause disease.
 - B. That they have heard the importance of equipment, but that *good* operation is more essential than good equipment.
 - C. Today they are considering the vital part played by the food handler himself in food protection.
- IV. Medical officer introduces health educator who will discuss food handler's personal habits and working habits, his health, and technique.
 - A. Importance of building and maintaining strong, dependable body.
 - B. Discusses food, fatigue, and personal protection measures, including routine physical checkups, nutrition for self and customer.
 - C. Describes the value of cleanliness and sanitary manners with photographs and shows:
 - 1. Waitress—attractiveness
 - 2. Cook—neatness
 - 3. Busboy—cleanliness
 - D. Sanitarian comments—repeating importance of methods over equipment.
- V. Medical Officer:
 - A. Points out that we remember things we see better than things we hear. Gives a history of "Doity Goity" with the assurance that she never worked in local restaurants, and advising that she will demonstrate some of the incorrect technique of actions that have been observed in a study of waitresses throughout the country.
 - B. Introduces health educator as "Doity Goity" and serves as unsuspecting customer who goes, with confidence, into Goity's restaurant, probably to be bowled over with food poisoning—if not actually killed.
 - C. Health educator with a restaurant setup demonstrates as "Doity Goity":
 - 1. Menu slinging
 - 2. Inattention
 - 3. Incorrect service of:
 - a. ice
 - b. water
 - c. milk
 - d. soup
 - e. Butter
 - D. Sanitarian conducts continuous narrative explaining faults, and re-showing Petri plates where applicable.
 - E. Waitress from local restaurant demonstrates:
 - 1. Attention
 - 2. Efficiency of movement
 - 3. Correct service
 - F. Comments on waitresses' work by health educator throughout demonstration.

- VI. Question-box — conducted by medical officer, sanitarian, and health educator.
- VII. Film showing the points related and demonstrated.
- VIII. Medical officer reads "Lest You Forget" on back of certificate. Kits made up of pertinent literature are distributed to each establishment. Medical officer leaves the feeling that the health department wants the help of food handlers and points out the necessity of their cooperation to help keep people well and on the job.

The detailed and elemental description of the plan followed may possibly seem superfluous but has been reviewed because we feel that this course has certain aspects in which it differs from other courses we have reviewed. The salient points are briefly these:

1. Simplicity and brevity
2. Interest provoking powers of variety
3. Running commentary
4. Origination of the request for the course by the owners and operators

the course might improve the effectiveness:

1. Some method of evaluation of how much of the course is assimilated by the individual
2. Specially prepared personalized materials for distribution
3. Film strips more definitely applicable to the subject

The results of the course are the basis on which we are encouraged to believe that the course has met the original needs which we attempted to satisfy:

1. A definite feeling was evident that the food handlers felt their jobs were important to the war effort.
2. Several food handlers that had attended courses in other areas volunteered the information that for the first time they were able to comprehend the intent of the course.
3. There was a definite change in the attitude of owners and operators.
4. Interest in course was established as evidenced by percentage of persons attending and establishments represented at the course (Illustrations 2 and 3).

Illustration 2—Per cent Food Handlers Attending Course

| <i>Places
Course
Offered</i> | <i>Total No.
Food Handlers</i> | <i>No. Food Handlers
Attending Course</i> | <i>Per cent
Food Handlers
Attending Course</i> |
|--------------------------------------|------------------------------------|---|--|
| Tullahoma | 304 | 248 | 82 |
| Shelbyville | 98 | 92 | 94 |
| Winchester | 120 | 116 | 97 |
| Lewisburg | 62 | 54 | 87 |
| Manchester | 47 | 47 | 100 |

Illustration 3—Per cent Represented in School

| <i>Places
Course
Offered</i> | <i>No. Food Handling
Establishments</i> | <i>No. Reported
in School</i> | <i>Per cent
Represented in School</i> |
|--------------------------------------|---|-----------------------------------|---|
| Tullahoma | 66 | 66 | 100 |
| Shelbyville | 49 | 49 | 100 |
| Winchester | 19 | 19 | 100 |
| Lewisburg | 23 | 23 | 100 |
| Manchester | 19 | 19 | 100 |

5. Participation of lay workers in arranging the course
6. Registration method
7. Efficiency with which certificates of attendance are presented
8. Short time interval between sessions

5. Interest was held as indicated by percentage of persons completing the course (Illustration 4).
6. Army officials expressed approbation of the sanitary status of the extra-cantonment areas. The idea of the course was adopted at Camp Forrest and a placard suggested in the course was placed in all latrines.

We feel that certain refinements of

Illustration 4—Percentage of Persons Completing the Course

| Places
Course
Offered | Total No.
Employees
Enrolled | No. Employees
Attending
Both Sessions | Per cent Employees
Completing Course |
|-----------------------------|------------------------------------|---|---|
| Tullahoma | 248 | 220 | 89 |
| Shelbyville | 92 | 84 | 91 |
| Winchester | 116 | 109 | 94 |
| Lewisburg | 54 | 47 | 87 |
| Manchester | 47 | 47 | 100 |

Illustration 5—Permanent Improvements as a Direct Result of School

| Places
Course
Offered | Number
Food Handling
Establishments | Number
Increasing
Score | Per cent
Increasing
Score | No. Closing for
Complete
Renovation
of Building
and Equipment to
Attain "Grade A" |
|-----------------------------|---|-------------------------------|---------------------------------|--|
| Tullahoma | 66 | 60 | 90 | 6 |
| Shelbyville | 49 | 41 | 84 | 1 |
| Winchester | 19 | 18 | 95 | 3 |
| Lewisburg | 23 | 19 | 83 | 0 |
| Manchester | 19 | 17 | 89 | 3 |

All extra-cantonment food sanitation was entrusted to the health department which was not done in any other area of which we know.

7. There has been a general improvement in the operational methods and expensive permanent improvements, such as complete renovation and discarding of obsolete equipment of eating places, which were reflected in higher grades throughout the area (Illustration 5).

In conclusion, we believe that the value of this type of effort will be greatly enhanced by:

1. A refresher course with advanced teaching at definite intervals as the need presents itself.
2. Periodic repetition of the basic course, for new workers.
3. Individual follow-up by the sanitarian during routine inspection visits.
4. Extension of these courses into the more remote communities through cooperation with local groups, such as home demonstration clubs, community councils, home economics clubs, and others.
5. Teaching projects with high school students through demonstrations and practice in school lunch rooms.

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Health Programs Under Military Government*

BRIG. GEN. JAMES S. SIMMONS, M.C., F.A.P.H.A., COL.
THOMAS B. TURNER, M.C., F.A.P.H.A., AND COL. IRA
V. HISCOCK, SN.C., F.A.P.H.A.

*Chief, Preventive Medicine Service, Office of The Surgeon General, U. S. Army;
Director, Division of Civil Public Health, Office of The Surgeon General,
U. S. Army; and Chief, Public Health Section, Civil Affairs Division,
War Department, Washington, D. C.*

MILITARY government may be defined as the supreme authority exercised by an armed force over the lands, property, and the inhabitants of enemy territory, or allied or domestic territory recovered from enemy occupation. It is exercised when an armed force has occupied such territory, whether by force or agreement, and has substituted its authority for that of the sovereign or a previous government.

Situations frequently arise, however, in which an armed force exercises control over civilians to lesser degree than under military government, through agreement with the recognized government of the territory in which the military force is located. To cover all of these relationships, the term civil affairs is commonly used in referring to those manifold and complex activities involving the government or the civilian inhabitants of such an area.

As an indication of the relative importance with which civil affairs activities are regarded, early in the present war a Civil Affairs Division was established as a part of the War Department

Special Staff. This Division has functioned under the able direction of Maj. Gen. John H. Hildring who is responsible for providing the Secretary of War with information and advice on matters concerning areas occupied as a result of military operations—other than matters strictly military in nature—and for the formulation and coördination of policy in these matters. The Surgeon General of the Army serves as the principal adviser to the director of this division in matters pertaining to health, and his responsibility in this respect is discharged through the Civil Public Health Division, which is an integral part of the Preventive Medicine Service. Health policies and plans developed by the Office of The Surgeon General are integrated and implemented through a public health section of the Civil Affairs Division.

The major field organizations of the Army also have civil affairs sections. At both Supreme Headquarters Allied Expeditionary Force and Allied Force Headquarters in the Mediterranean area, a General Staff division, designated G-5, deals with these problems. Under those headquarters lower echelons, usually down to and including combat divisions, have civil affairs organizations. Somewhat the same pat-

* Presented at a Joint Session of the Health Officers, Laboratory and Epidemiology Sections of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

tern is being developed for the Far East, where responsibility is shared with the Navy.

RÔLE OF PUBLIC HEALTH

The field of responsibility broadly known as public health is a major component of civil affairs activities. Its importance rests on the following considerations:

1. Widespread disease in the civil population can seriously impede military operations, either through extension of disease to the military forces, or through disruption of community activities supporting military operations.

2. Since public health is an integral part of government, the governing authority must assume responsibility for health programs directed to the prevention of epidemics and to the provision of facilities for medical care. Standards are those existing prior to the war and are to be restored as far as possible through the utilization of local personnel and facilities.

3. The character of modern warfare with its aerial bombardment, rapid movement of ground troops, and the utilization of cities for defensive strong points greatly enhances the danger to the civil population, which has frequently sustained heavy casualties. Common humanitarianism, as well as the desire to secure the good will and coöperation of the civil population, has impelled the Allied military forces under such circumstances to render assistance in providing medical care for civilians who come within their combat area.

As in all military operations, prolonged and detailed planning preceded actual civil affairs health activities in the field. Medical personnel were carefully selected and given an orientation course in military government, either at the School of Military Government at Charlottesville, or at one of the Civil Affairs Training Schools located at sev-

eral universities. This training also included a study of the language and characteristics of the people and country in which operations were to be conducted. At the staging areas overseas, officers were assigned to cover specific areas; plans were drawn in detail and closely coördinated with those of the combat forces.

During the past 15 months the civil affairs organization has followed and supported the Allied armies in Sicily, Italy, and a good portion of Northwest Europe. Weaknesses discovered in the earlier operations have been progressively corrected, and civil affairs, from being looked upon as a somewhat auxiliary organization, has come to be regarded as an integral and useful part of the Allied Armies.

PHASES OF HEALTH PROGRAMS

The health activities of civil affairs and military government may be divided into two phases—the emergency and the organizational—which often are not sharply delimited either in time or space. The emergency phase corresponds to the period of active combat. The health activities of this period have naturally varied tremendously depending upon the character of military operations and the degree of destruction. Efforts have been directed principally to providing for medical care for the wounded and seriously ill; assuring a supply of a few basic medical items such as surgical dressings, ether, morphine, and sulfonamide drugs; guarding against the dissipation of medical items still available in local stocks; and coöperating with the engineers in repairing damaged water supply systems, and protecting existing sources of water supply.

Transition from the emergency to the organizational phase is made as soon as possible, usually within a few days after occupation of an area. Rapid surveys are made to determine local

resources in medical personnel, hospitals, and medical supplies; the status of water and sewage disposal systems; and the prevalence of communicable disease in the area. Steps are taken to reconstitute and support the preëxisting health organization.

The important health problems can ordinarily be grouped into one of several general categories, namely, communicable disease control, medical services, sanitary engineering, medical supply, and nutrition. In addition, problems related to refugees and veterinary services may be encountered.

It should be constantly borne in mind that the entire civil public health program is being implemented by a very small number of American and British medical officers; reliance must of necessity be placed largely upon local resources in medical personnel. Civil affairs health officers play an essential rôle in providing a focal point about which some organized effort can be made, but only under exceptional circumstances is it possible for the civil affairs officer actually to treat patients or to engage in the minutiae of public health work.

Moreover, it must be realized that limitations on personnel and supplies and transport brought about by the more urgent demands of the combat forces make it necessary often to limit the over-all health program to bare essentials and to leave the less urgent problems for the day when rehabilitation can be undertaken by the local people, possibly with the aid of outside organizations. A primary focus in working with the people of liberated countries is the military necessity to keep supply lines and communications open and to prevent disorder. In the fulfillment of this mission civil affairs officers, working in close coördination with the tactical forces, aim to help these people to help themselves in getting on their feet, with the idea of

turning over responsibility to them at the earliest practicable date.

COMMUNICABLE DISEASE CONTROL

Typhoid and dysentery, typhus fever, smallpox, malaria, venereal disease, and scabies have thus far offered the greatest problems. In both Italy and Northwest Europe the incidence of typhoid and paratyphoid fever rose in the wake of combat operations, but sharp outbreaks have been limited to a relatively few communities. The incidence of all the gastrointestinal group of diseases has remained much lower than anticipated.

Typhus fever has occurred in epidemic proportions in only one area, Naples. This outbreak has been widely publicized and will be reviewed only briefly here. A seeding of typhus cases was known to have occurred during the German occupation. Frequent air raids before and after liberation of Naples by the Allied armies on October 1, 1944, had led to great overcrowding of the deep tunnels and cellars under the city, and this situation was aggravated by the influx of large numbers of refugees from the north. Presumably the louse population rose rapidly, and by the first week of December the incidence of typhus cases had increased sharply.

Upon request, the United States of America Typhus Commission inaugurated a control program, assisted by the civil affairs group and certain civilian staff members of the Rockefeller Foundation. This program comprised case finding, contact, refugee and mass delousing with DDT, and immunization of contacts and key personnel. In January, 1944, the peak month, over 1,000 new cases were reported, but the epidemic was quickly controlled with only 39 cases being reported during the last week of February. Practically no cases occurred among military personnel operating in this area.

Typhus has not yet been a problem

in Northwest Europe, although the test will doubtless come during the winter months. Refugees are being selectively dusted with DDT, and louse counts on a sampling basis are being made as a guide to further action.

The civil public health program calls for the re-inauguration of the smallpox vaccination program at the earliest possible date. Despite this, two outbreaks have occurred in Italy. One was small and easily controlled. In the other over 800 cases occurred in a large city during a 4 months period beginning in April, 1944; approximately 446,000 individuals were vaccinated during this period and the epidemic seems to have been controlled. The military population has been unaffected. No outbreaks have been reported from Northwest Europe.

Before the war, malaria, which for many years has been a problem in southern and central Italy, was fairly well controlled by an active antimalaria campaign. As a result of military operations, the principal malaria control installations in the Volturno and Carigliano river basins in Naples Province were heavily damaged, drainage canals were demolished, hydraulic pumps were destroyed as well as the power lines which fed them, and the equipment of antimalaria stations was either destroyed or dissipated. Bomb craters, tank traps, trenches, and fox holes afforded added opportunities for mosquito breeding.

In February, 1944, the civil public health group reestablished an active malaria control program, which was expanded during the pre-malaria season. Drainage operations, and dusting and oiling of mosquito breeding areas were carried out by Italian labor. In addition, a number of field experiments were made on the use of DDT mixed with oil and also on the use of DDT spray in houses and barns. The malaria control staff of the Allied Con-

trol Commission was augmented by a number of malariologists of the Rockefeller Foundation who served with the Commission in the capacity of civilian consultants to The Surgeon General.

When the Germans retreated beyond Rome, large areas of the reclaimed Pontine Marshes, historically famous as a malaria mosquito breeding area, were flooded. Antimalaria work was begun immediately under the direction of the civil public health group. Up to the middle of August, the incidence of malaria among military personnel and among civilians in this area had not been reported as unduly high.

The Allied armies are fairly well protected by vaccination against smallpox and typhus, but venereal disease offers a more direct threat to military personnel. Few reliable data are available on the incidence of syphilis and gonorrhea among the inhabitants of Italy and the countries of Northwest Europe, but the indications are that these diseases have increased substantially during the German occupation.

A vigorous venereal disease control program was launched by the civil public health group in Italy. Working in collaboration with the tactical forces, houses of prostitution were put "off limits" to soldiers, policing activities were increased, facilities for the examination and isolation of potentially infected women were provided, and treatment centers opened. A decline in the venereal disease rate among the armed forces occurred coincident with initiation of the civilian program. Similar programs are being developed in Northwest Europe.

Scabies is ordinarily not considered to be an important health problem. Yet under conditions of overcrowding and scarcity of soap and water, this disease can become a serious scourge to civilian populations; and form the basis of extensive skin infections. In both

Italy and France scabies has been an annoying problem.

MEDICAL SERVICES AND FACILITIES

Thus far no serious shortage of physicians as gauged by local pre-war standards has been encountered in any occupied or liberated area. But lack of transportation has everywhere in these areas greatly hampered the full utilization of their services. One of the important functions of the civil public health officer has been to assist in arranging some means of transportation for physicians. For example, of approximately 6,000 physicians in one large city of Europe, only about 1,500 had motor vehicles and petrol—the remainder had to get around on foot, or by inadequate public transportation.

In general, hospital facilities have been adequate to meet civilian needs, but here and there acute shortages have developed. In Naples, for example, one of the largest hospitals was severely damaged by bombing, and the hospital beds available for general use were further reduced by the needs of the military forces, the demands incident to the typhus epidemic and the expanded venereal disease control program. Several months were required to bring about a satisfactory adjustment.

Particular attention has been given to the reopening of public health laboratories for bacteriological work and for the production of biologicals.

SANITARY ENGINEERING

The water and sewerage systems of a number of cities and large towns in Italy and Northwest Europe have been heavily damaged by bombing and by artillery action. One report from Italy stated, "——— has become a city of water carriers." Reestablishment of essential sanitary facilities has often been hampered by damage to sources of electricity, lack of fuel to operate pumps, appropriation of essential ma-

chinery by the enemy, and scarcity of pipes and fittings. The problem has been further complicated by the penchant of the Nazis for placing booby traps in water works, piles of refuse, etc.

Great ingenuity has been displayed by the engineers in restoring these essential services, and it is to the credit of the civil affairs group that no serious water-borne outbreak of disease has occurred.

MEDICAL SUPPLY

The normal distribution system for medical supplies functions so smoothly in times of peace that few workers in civilian public health appreciate the essentiality of medical supplies. Years of war and enemy occupation have led to serious depletion of medical stocks throughout Europe. Add to this the destruction incident to actual combat, the increased demand of medical emergencies, the difficulties of distribution due to breakdown in transportation, and the complexities of narcotic drug control, and some idea is gained of the importance of the whole medical supply program in civil affairs.

Supply planning begins many months ahead of projected operations. Estimates of civilian requirements are prepared and certain assumptions are made concerning the local supply. Items are procured, assembled into functional units, and shipped as requested by the theater commander concerned. More than 800 items are included in the civil affairs medical supply program and many of these items differ from those in the regular military chain of supply.

The most difficult phase of the problem, however, is getting the supplies from the military base to the occupied area and thence to the hospitals, dispensaries, and physicians who must use them. An integral part of the problem is to assure that the best use is made of locally available supplies, and to

guard against diversion of supplies into the Black Market. Transportation and experienced supply personnel are the important factors.

NUTRITION

Because food is one of the basic requirements of human existence, no problem has given rise to greater difficulties or to more controversy. Importation of food is dependent principally upon the availability of transportation in an area where every ship must be allocated according to the needs of the fighting forces. Distribution of food within a country is influenced by the availability of transportation, as well as by many complex social and economic factors.

This whole problem transcends the health program and is not a direct responsibility of the health section. It is the responsibility of the health section, however, to obtain data on the nutritional status of populations in so far as it affects health, in order to determine food requirements and as a guide to the distribution of available food according to the needs of various groups in the population.

REFUGEES AND DISPLACED PERSONS

Throughout Europe are vast numbers of persons who are displaced from their home communities as a result of forces operating over the past decade. Their numbers in Northwest Europe alone total some eleven million persons who speak 20 different languages and are the concern of as many governments. In addition, military operations lead to temporary migrations of large numbers of individuals to escape bombing and artillery fire or to seek shelter after the destruction of their homes.

It has been necessary in many instances to establish temporary refugee camps, and to develop certain public health controls. While this activity is not primarily the responsibility of the

public health section of civil affairs, it is evident that problems of sanitation, immunization, mosquito and louse control, maternity and child care, and the provision of medical care and hospitalization call for the active participation of civil affairs health officers in this program.

VETERINARY SERVICES

In addition to the control of animal diseases, veterinary officers are given wide responsibility in the American Army for food sanitation, including meat and dairy inspection. The services of these officers have been utilized to advantage in the public health program, particularly in assisting in inspection, preservation, and processing of food, in the reestablishment of laboratories for the production of biologicals, and in assisting local veterinary personnel in the control of epidemics. Veterinary officers have also worked in close collaboration with the agriculture section of civil affairs in promoting the animal industry in liberated countries.

RELATIONSHIP TO OTHER ORGANIZATIONS

Some misunderstanding in the public's mind has arisen concerning the relationship of the health program of organizations such as UNRRA and the Red Cross to civil affairs health activities. From the beginning the Army has anticipated that UNRRA will play an important rôle in meeting the health problems of those liberated countries which signify their desire for such assistance. In preparation for the day when UNRRA will render assistance to governments in Northwest Europe, certain medical personnel assigned to that organization by the U. S. Public Health Service have been attached temporarily to the Civil Affairs organization in Europe for the purpose of acquiring actual field experience and to provide for smooth transition.

Arrangements have been made, too, whereby the services of the American Red Cross are utilized in the civil affairs health and relief programs in Italy and Northwest Europe. In those areas the American Red Cross operates under the jurisdiction of Allied military authorities in order to insure that its relationship to the local government and the local Red Cross organization is guided by the agreements reached between the Supreme Allied Commander and the governments concerned.

One of the most difficult civil affairs problems has been that of striking a happy balance between the host of well meaning, enthusiastic, and generous individuals and organizations which desire

to assist these war torn countries, on the one hand, and the wishes of the countries concerned and the demands of military necessity, on the other. There are many things to be done in liberated countries, but not least among them is the necessity of giving the people of those countries an opportunity to assume a greater degree of responsibility, and to nurture that modest pride in themselves without which the future must indeed seem dismal. For this reason military authorities have been reluctant to impose upon civilian populations new methods, outside personnel, and good advice except to the minimum extent required by military necessity.

New York City Adopts New Cheese Regulations

The New York City Board of Health on December 12 adopted a new sanitary Code Section forbidding the sale within the city after December 15, 1944, of any type of "cheddar" or "processed" cheese unless the cheese itself had been manufactured from pasteurized milk or milk products, subjected to a specified heat treatment during manufacture, or aged for a period of at least 60 days after manufacture at a specified temperature range. The board further ruled that after April 1, 1945, these cheeses sold

within the city must bear labels indicating whether pasteurization, heat treatment, or aging was used, as well as the date of manufacture, name of the producer, and other pertinent data.

Dr. Ernest L. Stebbins, Health Commissioner, emphasized the fact that New York City has had no outbreak of typhoid or any other dangerous disease due to cheese; but since 1917, 19 large outbreaks of typhoid fever in the United States and Canada have been traced to improperly processed cheese, 5 in 1944.

Proposed Report on the Educational Qualifications of Health Officers*†

I. GENERAL SCOPE OF THE FIELD

It has long been established that public health is a concern of government. The necessity for an official designated by law as health officer is universally recognized. Past accomplishment of the health officer and his associates as measured by the prevention of sickness and death and the prolongation of life is a matter of common knowledge. As success has been attained in certain areas, other and more complex problems have been brought into prominence, such as hitherto neglected chronic diseases and the maintenance of optimum health regardless of the prevalence of specific infections. Scientific discoveries of wide practical application are never ceasing; the demand for public services both for the prevention and cure of disease has become greater and in all probability will so continue. Thus, opportunities for challenging and constructive public service are bound to increase, as well as for advancement in keeping with the health officer's ability and his training and experience in his specialty.

Every community should have the benefits of full-time health service, but only about two-thirds of the country's population enjoy such service at the present time. Both this Association and

the American Medical Association have declared in official pronouncements their interest in the complete coverage of the United States by local units of health jurisdiction, and continued efforts in this direction are to be expected in the future. Between 1915 and 1935, the number of counties in the United States with full-time local health services increased from 14 to 762. Passage of the Social Security Act in 1935 stimulated and accelerated this development, so that there are now over 1,800 counties which receive full-time health service.

Approximately 1,200 full-time health officers are now serving local areas in the United States. Of this number over 90 per cent hold the degree of Doctor of Medicine and 20 per cent hold this degree and in addition a postgraduate degree in public health. The majority of full-time local health officers are employed by cities, counties, and combinations thereof. In some states, district health officers on the staffs of state departments of health are stationed in local areas and render direct service there. A large number of individuals qualified as health officers are employed by federal and state agencies and by voluntary organizations.

In large local jurisdictions and in federal and state agencies, there are numerous subordinate positions, such as those of deputy and assistant health officer. Several grades of positions with administrative duties are provided, and there are definite lines of promotion.

II. THE FUNCTIONS OF HEALTH OFFICERS

Many functions of the health officer

* The Committee on Professional Education of the American Public Health Association publishes this report before transmittal to the Governing Council in order to permit the members and Fellows of the Association to review it and to offer criticisms and suggestions in the further consideration of the report.

This report, like all other statements of the committee on professional and technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought.

† This proposed report is a revision of the Report on the Educational Qualifications of Health Officers approved by the Governing Council on October 18, 1939, and is intended to supersede the earlier report.

are defined by statute such as his power to enforce sanitary laws and regulations, his responsibility for budgets and the proper expenditure of funds, his duties in relation to the selection and management of personnel, and his obligation to carry out the policies of his department. He also has the important functions of promoting community and personal well-being and of interpreting health activities to the governing body, to official and voluntary agencies, and to individuals. As an executive and administrator, the health officer is charged with performing the duties of a public office; in addition, he is in a position to lead the community in all matters pertaining to health.

Besides administrative duties and exercising leadership in his field, the health officer takes part in specific activities for disease prevention and control, using technical procedures that call for a high degree of medical and sanitary knowledge. In smaller localities, he may perform all or numerous medical and other professional functions himself. In larger centers, the health officer organizes, directs, and evaluates the work of his subordinates and must be able to exercise both technical skill and professional judgment in doing so. The health officer's position is such that he has a broad opportunity for special studies and research in public health.

III. THE EDUCATIONAL BACKGROUND OF HEALTH OFFICERS

The basic educational background for the position of health officer is as follows:

1. Fundamental training in the sciences and the humanities at least equivalent to that required for a college degree in the Arts or Sciences.

2. Completion of a course leading to the degree of Doctor of Medicine * in a medical school approved by the Council on Medical Education and Hospitals of the American Medical Association.

3. Internship of at least one year in an approved general hospital including communicable disease service.

4. Eligibility to examination for medical licensure in the state where service is to be rendered.

IV. GRADUATE EDUCATION AND TRAINING

Graduate education and training for the position of health officer should include the following:

1. Preliminary supervised field training in a well organized health department for a period sufficient to give acquaintance with the general aspects of public health and to give the candidate an opportunity to determine his own liking and fitness for such work.

2. Completion of a program of study leading to a degree in public health of not less than one full academic year in a university. The university in which such a program of study is pursued should have a well organized school or department of public health with a corps of full-time instructors recognized as leaders in their respective fields, ample laboratory, library, and other facilities, and access to official and voluntary health agencies willing to provide facilities for field training and experience.† The program of study should cover the general field of public health: administration, biostatistics, environmental sanitation, epidemiology, health education, laboratory methods, public health nursing, and should be

* Because of the trend upon the part of governmental bodies to insist upon the medical degree as a prerequisite to appointment as health officer, it is inadvisable to encourage the candidate for a public health degree to look forward to a career as health officer unless he is also the possessor of a medical degree. In making this recommendation, the American Public Health Association expressly recognizes the professional standing of persons now performing creditable service as health officers.

† See "Memorandum Regarding Minimum Educational Facilities for the Postgraduate Education of Those Seeking Careers in Public Health," prepared by the Committee on Professional Education, American Public Health Association and published in the *American Journal of Public Health*, May, 1942.

accompanied by special instruction in the application of basic principles to the functions and duties of a public health administrator.

3. An additional year of practical experience in a subordinate position is highly desirable before the graduate in public health assumes full direction of a health department.

4. Full-time practical experience is an essential part of the education of the health officer, and it is recognized that great achievement can usually be attained only after long experience. Physicians otherwise qualified who have achieved notable success and who have had many years of full-time experience in a well organized health agency may be considered as eligible to serve as health officers even though lacking formal academic training. However, it is to be emphasized that an exception

to the requirements of a postgraduate course and supervised field training is to be made only if the candidate, in addition to years of experience, has actually demonstrated unusual ability as a public health administrator.

Personal Qualities

The health officer should possess the qualities of personality and character necessary to insure the successful prosecution of his scientific and administrative duties. These include such qualities as leadership, the ability to establish and maintain favorable relations with the public and his own personnel, creative ability, far sighted sound judgment and common sense, and the will to serve honestly and industriously at all times, subordinating his own desires to the best interests of the community.

COMMITTEE ON PROFESSIONAL EDUCATION

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Proposed Report on the Educational Qualifications of Public Health Dentists*

I. THE GENERAL SCOPE OF PUBLIC HEALTH DENTISTRY

Dental diseases and defects are the most widely spread of chronic disorders throughout the world. The vastly important rôle that dental diseases play in disorders of the body as a whole is now being generally recognized, and demands for services are constantly increasing. It is obvious that interests and activities directed toward the prevention and control of dental diseases become an obligation of health departments. Prevention, early detection, and correction of dental lesions, with particular reference to dental caries, are the specific objectives of public health dentistry. In recent years there has been a noteworthy growth of interest in public health dentistry. At the beginning of the war 42 states and the District of Columbia maintained bureaus or divisions of public health dentistry in their health departments. Approximately 150 dentists, more than two-thirds of whom are on a full-time basis, are employed by departments of health.

Of major interest is the field of dentistry for children. In various sections of the United States, municipal and county health departments, public

schools, and other agencies are employing dentists who give particular attention to dentistry for child patients. The Federal Social Security Act with its provisions for financial assistance and services to maternal and child health, crippled children, and child welfare services is promoting interest and activities in dentistry for the younger age groups. Adult dentistry, however, is being promoted by various agencies of the federal government, by directors of industrial hygiene programs, and by the voluntary health organizations concerned with the adult and middle age periods of life. The early Selective Service examinations in World War II which resulted in many rejections because of bad teeth should accelerate programs of dentistry for young adults in the future. Proposed expansion of the federal social security program contemplates increased health and medical services to the public, including dental services.

The future outlook of public health dentistry as a profession is most encouraging. Even now the needs and demands for qualified public health dentists far exceed the supply, and adequate preparation of dentists for effective careers in public health dentistry is an obligation of universities equipped to offer such education and training.

II. THE FUNCTIONS OF PUBLIC HEALTH DENTISTS

In addition to intelligent and effective participation in general public health work and administration, the

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public health dentist must assume the specialized tasks incident to a dental program. He may be expected to keep informed regarding the latest developments in dental research, to maintain competency in directing the details of any service program, to serve as a consultant for dental diagnosis; to provide laboratory facilities for diagnosis; to prepare and initiate plans for the dental phases of new health programs; to provide professional advice in developing and supplying authentic and effective dental health educational material; to provide instruction in sound dental health practice to groups of public health workers, teachers, and others; to institute dental research projects; to coördinate a variety of agencies that deal with dental health, official and nonofficial; and to develop specialized indices or records for measuring and testing the efficacy of dental programs.

The progressive dental administrator will seek a broad insight into social trends as they affect, or will affect, the practice of dentistry. He will wish to learn how to prepare policies and budgets for an increasing variety of programs. After some experience with the operation of these programs he will want to evaluate them. He will wish to determine policies for his attitude toward and his coöperative activities with other public health divisions, the organized dental profession, and the various community organizations and agencies. He will desire information about personnel classification, merit systems, and equipment. All of these questions, and others, grow out of the special problems of administration of the public health dentist.

So much of the dental health educational material of the immediate past has been inaccurate or misleading in statement, commercially propagandizing in nature, unattractive in appearance, and not in accord with sound educational practice, that the public health

dentist should have the ability to evaluate critically all dental health educational materials. He also should be able to secure accurate scientific information and be well versed in the preparation and utilization of effective teaching materials.

III. THE EDUCATIONAL BACKGROUND OF PUBLIC HEALTH DENTISTS

For admission to the program of study in public health dentistry, the candidate should have completed a course leading to a degree of Doctor of Dental Surgery or Doctor of Dental Medicine in a school of dentistry approved by the Council on Dental Education of the American Dental Association. Experience in the practice of dentistry is desirable as an additional requirement for admission.

IV. GRADUATE OR PROFESSIONAL EDUCATION

Consideration of the functions of the public health dentist indicates that there are two distinct phases to his professional specialization: (1) instruction in the general principles and practices of public health in order that the dentist may take his appropriate place in the public health program as a whole, and (2) instruction in those sciences and disciplines which prepare the student to function adequately in public health dentistry.

1. *Instruction in Public Health:* In order that the dentist may assume an appropriate rôle in the public health program as a whole, it is apparent that he should include in his studies courses in biostatistics, epidemiology, sanitation, public health administration, physiological hygiene, and health education.

2. *Public Health Dentistry:* Advancement in the sciences and technics of dentistry is moving at a rapid pace. Therefore, it is essential that public health dental students be given oppor-

tunities to review the most recent advances in dental bacteriology, histopathology, physiology, materials and operative procedures. It is recommended that a review of the technical phases of dentistry for children be stressed. The degree of this emphasis will be determined by the student's previous preparation and experience.

It is believed that, in addition to general courses in administration and health education, the public health dentist should be given a course dealing specifically with problems in dental health education and the administration of treatment programs. Such problems include the social and economic aspects of the practice of dentistry, the conduct of dental surveys, personnel and equipment, and observation of established public health dental programs.

It will be found that there will be considerable variations in the preparation of students who enroll in the curriculum in public health dentistry. Therefore, a wide range of courses offered in several schools and colleges of the university should be open to him as elective courses. Other graduate courses in the school of dentistry will be recommended for most students. Desirable electives may be found in the school of medicine and in the school of education. Sociology and political sciences may be recommended to professional students in this field.

V. PERSONAL QUALITIES

It is apparent that the personal qualities of one who is to direct the interests and activities of public health dentistry should be similar to those for directorship in the other fields of public health; namely, adaptability, common sense, creative ability, good health, judgment, leadership, alertness, and enthusiasm. Much of the success of the director of a program of public health dentistry will depend on his capacity to

establish favorable public health relations and to organize coöperative efforts.

VI. APPROXIMATE TIME REQUIRED

Satisfactory completion of one academic year of study, or an equivalent period, and sufficient practical field experience to satisfy the administrative officer or committee of the school of public health may be considered the usual time requirement. The degree of Master of Public Health or its equivalent may well be conferred upon the completion of this program of study.

VII. TYPE OF INSTITUTION BEST FITTED TO GIVE TRAINING

Since the courses of study, prescribed and elective, which make up a curriculum in public health dentistry will be offered in several schools of the university, it is apparent that a university which maintains these necessary schools in a convenient, coöperative relation to each other is in a most favorable position to offer a professional program of study in public health dentistry. The program should be developed in a school of public health* in close coöperation with a school of dentistry. The prescribed courses of study which acquaint the student with the general principles and practices of public health should be taken in common with professional students in other fields of public health.

Obviously, the above statement relative to the educational qualifications of public health dentists applies specifically to personnel who anticipate careers as directors or administrators of dental health programs. A second category of functions of dentists in public health is recognized, namely, *dental services* in dental clinics which

* See "Memorandum Regarding Minimum Educational Facilities for the Postgraduate Education of Those Seeking Careers in Public Health," prepared by the Committee on Professional Education, American Public Health Association and published in the *American Journal of Public Health*, May, 1942.

are now being established as parts of comprehensive health programs in the public schools, local public health and non-governmental agencies. Increasingly, dentists are being employed on a part-time or full-time basis, to provide the dental services of these clinics. Dentists, thus employed, should be

thoroughly familiar with the technical requirements of the work. It is apparent that graduation from a school of dentistry approved by the Council on Dental Education of the American Dental Association should be required of a dentist functioning in this category of services.

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American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 35

January, 1945

Number 1

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HAS BALTIMORE THE OLDEST HEALTH DEPARTMENT?

HISTORIANS of public health in England agree that W. H. Duncan, appointed at Liverpool in 1847, was the first medical officer of health in that country. In the United States, the history of organized health service seems to be a longer one; though it may be that our apparent priority depends on difference in the definition of terms.

Throughout colonial times, the threat of epidemic disease was dealt with by proclamations of fasting and prayer and by emergency procedures for seaport quarantine. In the last decade of the eighteenth and the first decade of the nineteenth century, however, the threat of yellow fever led to a sudden and widespread development of legislation—on both state and local levels—for the establishment of permanent boards of health. State legislation of this type was passed in New York and Massachusetts in 1797 and in Connecticut in 1805. Many of our city health departments date back to these two decades. Chapin¹ tells us: "It is said that a board of health was established in Petersburg, Virginia, in 1780. One was certainly established in Philadelphia in 1794, and in New York in 1796. . . . Boston established a board of health in 1799, with Paul Revere at its head." Tobey² states that "the first local health board was organized in Baltimore in 1793." Huntington Williams³ has effectively supported the claim of Baltimore as contender for the title of Senior Health City in the United States (or, perhaps, in the world). He offers evidence to show the following facts. The Laws of Maryland for 1793 contain an "Act to appoint a health officer for the port of Baltimore-town" (signed by the Governor December 28, 1793). John Ross and John Worthington had been acting as quarantine physicians since 1792, and it is apparent that they served under the Committee of Health which, prior to the state legislation, had been set up in September, 1793, and made a report to the citizens on the local absence of "the malignant fever" on September 14.

Thomas Drysdale was appointed as an additional quarantine physician for Baltimore in 1794. On January 1, 1797, Baltimore was incorporated as a city

and promptly thereafter established a Board of Health as a recognized branch of the city government. This "Board of Health" became the "Department of Health" in 1900. Dr. Williams has apparently ample documentary evidence from the scrap book and ledger of the Committee on Health to show that this Committee early in 1797 became the "Commissioners of Health" and that the use of the phrases "Health Department" and "Health Officer" indicate complete continuity from the first appointment of the Committee in 1793 to the establishment of the Board in 1797.

In New York and Philadelphia, much the same process took place. Correspondence between Dr. Williams and New York City authorities indicates that Philadelphia set up a special committee to deal with the menace of yellow fever on September 14, 1793, and that New York took a similar step on September 16 when a citizens' committee was announced by the Mayor as selected to aid the Board of Aldermen in dealing with the threat of the epidemic. A real Board of Health for New York was organized under the new state law on March 20, 1797. Whether the committees of 1793 appointed in Philadelphia and New York City had a history continuous with the boards subsequently established in 1797 (as was the case at Baltimore), we do not know.

The determination of the oldest Board of Health in the United States is not essentially important to the war effort. Even health officers in wartime may, however, have their moments of relaxation. If, in such moments, any health officer finds local evidence to challenge the priority of Baltimore, the *Journal* would be glad to have the facts. We must, of course, have rules in any competition. The *Journal* therefore arbitrarily declares that, for the purposes of this contest, three conditions must be fulfilled. First, there must be documentary evidence of the creation of a municipal body (whether committee, board or department) devoted solely, or primarily, to the protection of the public health. Second, this body must have had, from the date on which priority is based, medical men serving officially as its agents and public funds at its disposal. Third, the body in question must have been (with whatever incidental changes of name) in continuous operation since the date claimed for priority.

On this basis, Baltimore enters, as of September 14, 1793. If communities in the United States, Canada, Cuba, or Mexico—or in Great Britain or any other country—desire to challenge Baltimore, let us hear from them.

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BASIC ESSENTIALS OF MILK SANITATION

THE control of milk-borne diseases is one of the outstanding achievements of American sanitary science; and in this field it is probable that the United States and Canada have reached a standard unequalled anywhere in the world. Yet the job is not complete. For the fifteen year period between 1923 and 1937 inclusive, the U.S.P.H.S. received reports of 639 outbreaks of milk-borne disease, involving 25,863 cases and 707 deaths.

Our main line of defense against such danger is pasteurization. With this safeguard, the hazard is reduced to minimum proportions; without it, other pre-

cautions yield results which are precarious and uncertain. A. W. Fuchs¹ tells us that, during the period mentioned above, about 30 per cent of the milk supply of municipalities of over 1,000 population in the United States was un-pasteurized; and that this 30 per cent of the supply caused 95 per cent of milk-borne disease. He estimates that in 1944 the proportion of the population supplied with this dangerous food supply has fallen to 20 per cent. There is today no reasonable excuse for even this proportion. We cannot rest satisfied until 100 per cent of our municipal milk supply is made safe by pasteurization.

A coiner of slogans once said that, in the case of water supply and milk supply, he preferred innocence to repentance. This is a wholly unsound view. All good sanitarians now accept the doctrine of original sin. We like our water supplies and milk supplies to be as innocent as possible; but we must insist on repentance in any case. The essential process of pasteurization should, however, be the final step in a chain of protective measures—not a substitute for them. We want clean milk as well as safe milk. Therefore, systematic routine farm inspection and effective control of temperature in transit and storage of milk are important. There is, however, no conceivable excuse for the present system, under which half a dozen different state and local authorities inspect the same farm. J. Lloyd Barron² a year ago presented a convincing argument in favor of state-wide routine farm inspections conducted by the State Department of Health. Duplicate inspection—often involving contradictory standards—cannot fail to be confusing and involves an inexcusable waste of public funds. The health officer—as an expert in public administration—should be able to find some way out of the present state of confusion.

The next link in the chain is intensive supervision and frequent inspection of pasteurizing plants, with platform inspection and laboratory control of raw milk as delivered to the plant, followed by laboratory examination of the final pasteurized product. Laboratory control is the most important safeguard of all, except for the basic requirement of pasteurization. The proof of the pudding is in the eating (or drinking); and laboratory tests are essential to discover whether milk is really fit to drink. Furthermore, the results of laboratory tests can be used to great advantage as a basis for supplementary inspection of farms from which an unsatisfactory product comes. In many fields of health practice it has been found that inspections at vulnerable points revealed by a preliminary screening test are far more effective and economical than routine shotgun procedures. An ideal milk control program might be one in which routine farm inspection was conducted by a state authority, with supplementary visits by city inspectors to producers whose product indicates on laboratory test the need for educational assistance. With such a supplementary procedure, routine farm inspections could be cut down to the two inspections per year called for by the standard milk ordinance, instead of the eight inspections now provided in common practice.

Finally, a word should be said about the importance of uniformity in laboratory technics used for control. L. A. Black,³ in a survey in war areas, found that the average milk laboratory in the first 26 states surveyed complied fully with not more than half of the 25 main items of *Standard Methods* relating to the plate count. Even the sanctity of the plate count itself has been called in question. A few, but apparently an increasing number, of control officials are demanding laboratory tests that give more information than can be secured from the report of a plate count of organisms that can be made to grow on a particular medium at a selected temperature, and which does not include thermophilic and

psychrophilic flora. Mickle and Borman⁴ have suggested a three-point program including the use of a direct microscopic clump count, a test for coliform organisms, and the phosphatase test, omitting the plate count entirely. The phosphatase test is, of course, essential for all pasteurized milk; but the replacement of the plate count by microscopic count (or by the methylene-blue reduction test, used in England) is still controversial. Black⁵ argues strongly for the plate count, particularly as applied to the finished product. Long and extensive experience with the plate count cannot be lightly cast aside; but Tiedeman and Hohl⁶ of the New York State Department of Health, after commenting that there is need either for a drastic revision of plate count technic or a general movement to discountenance and discontinue the use of such counts, conclude that the intelligent use of the microscopic and associated technics of laboratory control opens new fields for protecting public health. It would be helpful if the A.P.H.A. could initiate a study of this whole question by a group including administrators and engineers as well as laboratory workers. The specialist always tends to insist on 99.99 per cent results even when only a difference between 100 per cent and 90 per cent can be enforced in practice. A laboratory test, in the field of health administration, should be accurate enough to distinguish in the vast majority of cases between a safe and an unsafe product; with allowance of a safe margin of error. It should, however, also be sufficiently practical and economical as to be applicable on the widest scale. Finally, it should be so standardized by general agreement that results in different jurisdictions may be reasonably comparable.

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PROBLEMS OF DENTAL ECONOMICS

IN the wide field of planning for the provision of medical care for the American people, there are no more difficult problems than those which relate to dentistry.

In 1929, at the peak of peacetime prosperity, of members of families with incomes below \$1,200, only 10 per cent visited a dentist as often as once a year; in the \$1,200-\$2,000 group, the proportion rose to 15 per cent; in the \$2,000-\$3,000 group, to 21 per cent.¹ In that year, there were 56 dentists available for every 100,000 persons in the whole of the United States. In Oregon, the figure rose to 101; in Mississippi, it fell to 19. Lee and Jones in their study of the fundamentals of good medical care² estimated that for adequate service there should be from 99 to 179 dentists per 100,000—depending on the extent to which dental hygienists and other subsidiary personnel can be utilized.

There are four possible lines of approach to this very serious problem.

As public health workers, our thoughts turn first to prevention. If large-scale experiments now being conducted in various states on the addition of fluorides to public water supplies substantiate the hope that one-third of dental caries may be prevented by this procedure, we shall have made a long stride forward. Beyond

this point, however, prevention means more dental service—fruitful in the long run but demanding increased professional facilities in the immediate future.

Second, we must look—under any conceivable program—for a substantial increase in the number of dentists available. It is here that we face the gravest shortage in the entire field of medical personnel.

Third, even with an increase in personnel, it is clear that serious efforts must be made to increase the efficiency of the service rendered. John Oppie McCall³ has presented a courageous and far-reaching program along this line—following a precedent set by such pioneers of dentistry as Owre in the past. He visualizes the dentist of the future as the highly trained expert director of a coöperative team including the dental hygienist (who would, under his guidance, place amalgam and other plastic fillings for children up to the age of 14); the dental technician (who would take impressions for, insert and adjust dentures); and the dental assistant. The dentist himself would be free to devote himself to diagnosis, prescriptions for preventive dentistry, operative periodontic and orthodontic treatment, crown and bridge work and direction of auxiliary personnel.

Fourth, and finally, there is always the question of payment. Many dentists believe that preventive dentistry for the child should be offered to all at the taxpayer's expense and that tax support or subsidized insurance should be available for a considerable section of the population. Recent proposals for prepayment in the general field of medical care have, however, generally slighted dentistry, either omitting it entirely or providing a very limited amount of dental care, or proposing further study of ways and means. The reason for this neglect has been the difficulty of estimating costs and separating the burden of initial and of subsequent care. Previous data—particularly with regard to maintenance care—have been almost lacking.

For this reason, a study recently made by Dorothy F. Beck for the American College of Dentists⁴ is of very special significance. It covers 1,563 years of maintenance care provided to 485 patients in a low-fee but self-supporting dental pay clinic in New York City. Its particular value lies in the fact that it distinguishes sharply between "initial care," necessary to put into shape a mouth which has been neglected for years, and "annual maintenance care," thereafter. The first of these items, initial care, actually amounted to \$52.66 per person in the New York study but would have been \$55.23 if prophylaxis and x-rays had been provided at recommended frequency. This figure corresponds reasonably well with the results of earlier studies in New York and Chicago and of one conducted by the A.D.A. It is this sort of figure which has staggered planners for medical prepayment. It is clearly, however, a sort of capital charge to make up for past community neglect.

The really important result of the study is the cost of annual maintenance care which was actually \$10.05 and would have been \$13.26 if prophylaxis and x-ray service had been optimal. This figure, which is the vital one, has not been provided by any previous study. It is about 25 per cent higher than the estimate of the Committee on Costs of Medical Care which was \$10.70.

Clearly, this type of study should be duplicated in other areas and under other conditions, since reasonably close actuarial data are essential before dental care can be included in prepayment plans. On the whole, the results are highly encouraging. It has been shown that \$25 a year will cover medical and hospital

care. The addition of \$10-\$12 for dental coverage should not be beyond the bounds of economic possibility.

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A MESSAGE FROM THOMAS PARRAN, M.D., SURGEON GENERAL, UNITED STATES PUBLIC HEALTH SERVICE

THE late Dr. William H. Welch of The Johns Hopkins University once said that America's two greatest contributions to public health are the Panama Canal and the public health nurse.

Public health nursing is very largely a 20th century development. During the past thirty years the number of public health nurses increased from 3,000 to more than 20,000, until today they outnumber any other professional group in the health field. Yet, if total nursing needs in this field are to be met, three times as many public health nurses must be made available.

Nursing service is needed to translate into practice almost every phase of public health. Child hygiene, maternity service, venereal disease, and tuberculosis control, industrial hygiene, and even home and community sanitation programs are only a few of the services which, if they are to function effectively, must have the guidance and assistance of nurses. Although public health nursing originated because there was need for professional nursing care of the sick on a visit basis in the homes, some of our public health administrators have lost sight of that important public health nursing function. Prevention and cure of disease are two sides of the same problem. They are not two separate problems. From the beginning public health nurses have been concerned with the total health situation of the family, including sickness care, disease prevention, and health promotion. The whole public health profession, including hospital and sanatorium administrators, must share this same point of view if optimum health is to be obtained for all during the post-war period.

In setting aside January 26 as Public Health Nursing Day for America, health administrators and all other friends of nursing should dedicate themselves to promote:

1. The extension of public health nursing services so that there shall be enough qualified nurses to meet the needs of all people.
2. A plan for the payment and distribution of those services on the basis of need, not on the ability of the individual to pay.
3. The establishment of employment policies which will insure qualified nurses full employment, adequate compensation and the security incident to retirement benefits.

Public Health Nursing Day should serve to focus the attention of the American family upon the value of the public health nurse as a front line defender and restorer of health.

Credit Lines

WHAT OF THE FUTURE OF THE HEALTH MOVIE?

(The *Journal* is indebted to Dr. H. E. Kleinschmidt for this contribution.)

Immediately after the war we may expect a great surge of interest in educational motion pictures in all fields of endeavor. The remarkable results obtained through the use of instruction films by our armed forces and the great success of British documentary films are bound to activate the interest of educators. Their demands for better films should not be in vain, for thousands of motion picture experts released from service will be eager to offer their skills. Experience gained under the pressure of war will enrich peacetime efforts. As soon as priority restrictions on motion picture apparatus are removed, far better projectors than we have now will doubtless flood the market. The installation of apparatus will in turn intensify the demand for movies. Competition will be keen and quality will therefore improve. In an expanding market for motion picture prints, production costs will be less per unit, which will make possible more movies of better quality.

Pecuniary motives will bring new adventures into the field, for educational productions will require an annual turnover of millions of dollars. Captains of industry, we suspect, are already poised to pick that plum. To permit the production of health movies to fall into the hands of the entertainment industry would be tragic. They have, admittedly, the best technicians in the world, but mechanical perfection is not enough; in fact, too much emphasis placed on the means may obscure the end. For the entertainer, box

office appeal is the measuring stick, glamor is the essential ingredient, expensive stars are indispensable. An entertainment picture must please the millions, therefore controversy, the vitamin of intellectual growth, is scrupulously avoided. No one may be offended, no one's faith may be shaken, no toes may be trod upon—a smug, intellectually innocuous product is often the result. The entertainment industry may seek to engage in education as a side line, a pot boiler. But temporarily divesting oneself of make-up and stage trappings does not make one a teacher. Hollywood is a state of mind.

Equally disastrous would be the fate of the health education movie if it should fall into the hands of the so-called industrial film producer. His approach is that of the salesman; his aim is to please the buyer; such facts as he presents are carefully arrayed to break down "buyer resistance." His business is perfectly legitimate but he must not be allowed to dominate or even remotely to influence the function of the educator, much less assume it, any more than the textbook publisher is permitted to prescribe what is to go into the textbook. There are valuable services to be rendered by both entertainer and industrial film maker, but pecuniary considerations of no kind should be allowed to determine the policies governing educational movies.

All this is a challenge to those who give leadership to the public health movement today. Alas, too few appreciate the dilemma or see the vast possibilities. Heretofore health workers have, relatively speaking, merely toyed with the movie in a mood of amused tolerance. The administrator who has so much "serious" work to

do that he cannot bother with this public health tool may easily have it snatched away from him. The technical specialist, whether sanitarian, epidemiologist, nutritionist, or what-ever, who is so wrapped up in his specialty that he looks down his nose at movies, may some day complain that false prophets have the public ear. The health educator who deigns not to soil his hands with the grime of film and projector and the hoi polloi, and who leaves such tasks to the porter, will one day wake up to find his beard grown seven feet long. Health workers, WAKE UP!

PRaise FROM AN EXPERT

Raymond S. Patterson, Ph.D., Director of Health Education, John Hancock Mutual Life Insurance Company, Boston, Mass., is curiously addicted to the study of annual reports of health departments. He sees a great many of them and there are few which he finds altogether satisfying. One sits up and takes notice, therefore, when he lets himself go in commendation. Here he is:

"Let me sing the praise of Cleveland County, Oklahoma. From the County Health Department has come an annual report that will make Cleveland, Ohio, and a lot of other overgrown cities blush for shame. The title is Health for Thirty-one Thousand People. The first page shows the attractive information desk at which the hesitant caller is made to feel that he is sufficiently important to have his needs tended to promptly and with a good will. Then, with each activity tellingly illustrated with unposed pictures, there follows a story of what was done and what could not be done in the several fields of maternity care, infant and child hygiene, communicable diseases, sanitary services, health education, and all the other familiars. *At the end* the staff is listed. Dr. Gertrude Nielson, the director, gracefully gives credit for the

excellent news photographs and the not so good typography and printing.

"The Common Man I sing, we sing with Walt Whitman, when we consider the stilted, lifeless, boring annual reports that many wealthy cities continue to foist upon an unimpressed public."

AND WE LIKE THIS ANNUAL REPORT, TOO

The 1943 Annual Report of the Pasadena Health Department, Charles W. Arthur, Ph.B., Acting Health Officer. It includes among other interesting features of vital statistics a record showing the percentage of death certificates which were not signed by medical attendants. Even more important, however, as a measure of the accuracy of medical diagnosis is the fact as reported for 1943 that 29.4 per cent of the deaths were followed by autopsy. What community can challenge Pasadena for a higher percentage of autopsied deaths?

ONE SOLUTION OF A PERPLEXING SCHOOL PROBLEM

In analyzing the innumerable services that school nurses are frequently called on to perform, one item relates to the method of contacting the home in case of illness or accident occurring in school. Is it a proper use of time to expect the nurse to take the child home? Those who are interested in conserving a nurse's time for strictly health work object to burdening the nurse with this time consuming task, and yet a task that must be met in some satisfactory manner.

The Des Moines (Iowa) Public Schools have met the problem by distributing the attached form which is filled out and kept on file in the school. It asks for specific information from parents on how best to make contact with the home when emergencies arise. Names, addresses and telephone numbers are requested of the home, of the

H. R. Teacher..... Grade..... Pupil's Name.....

DES MOINES PUBLIC SCHOOLS
Supplementary Information to be Used in Case of Emergencies

Emergencies such as sudden illness, injuries, etc., are certain to arise during the course of the school year. It is important, then, for the welfare of the children that the school be able at all times to contact some person who is responsible for a particular pupil. This year, with so many mothers working and thus away from home during the school day, it is more important than ever before for the school to have complete information concerning the people to contact in case of such emergencies. Will you please supply the following information and have your child return this sheet to school at once.

| | Name | Home Address | Home Phone No. |
|----------|------|--------------|----------------|
| Mother | | | |
| Father | | | |
| Guardian | | | |

| | Where Employed | Address | Phone No. |
|----------|----------------|---------|-----------|
| Mother | | | |
| Father | | | |
| Guardian | | | |

If you do not have a phone, or if your phone is busy, give the name and phone number of a neighbor who would be willing to call you in an emergency.

Name..... Phone No.....

In case the school is unable to contact either parent at home or at work, please list below two relatives or friends who can tell us how to get in touch with you or who would have the authority to advise with us regarding the welfare of your child

| Name | Address | Home Phone No. | Business Phone No. |
|------|---------|----------------|--------------------|
| | | | |
| | | | |

Doctor to be called at expense of parent.....

Address..... Phone No.....

(To be called only if parents or some member of family cannot be contacted in the event of an emergency.)

Remarks: Other information that will be helpful in protecting your child.....

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.....

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Signature of Parent.....

place of employment, of a designated neighbor, or friends or relatives, and further of the family physician. With this information readily available the school is in a much better position to deal intelligently and promptly with events of this nature. Even though some preliminary effort is necessary in gathering the essential information, this solution would seem to be far

more satisfactory in all respects than using the time of a busy nurse to take the child home where no one may be found at the time.

ONE CITY'S RECORD

If anyone needed documentary proof of the fact that Baltimore, Md., has a dynamic Health Department he need only read the bound copies of *Baltimore Health News* for 1942-1943, recently received from the desk of Huntington Williams, M.D., Dr.P.H., Commissioner.

Few cities undertake so ambitious a program as Baltimore under Dr. Williams's direction. This is a highly commendable effort to acquaint the public with the service rendered by the department. It is illustrated frequently by the publication of facsimiles of original documents, such as that relating to the establishment of the Baltimore City Health Department. Excellent use is made of photographs of staff members to personalize the service rendered by this public agency. Statistics are presented, but they are never of the dry-as-dust variety and are regularly related to the practical business of keeping Baltimore's health standards high. Particularly effective is the published evidence of law enforcement in housing and in milk control.

NEW JERSEY LOOKS AT LOCAL GOVERNMENT

A recent *News Letter* of the New Jersey Health and Sanitary Association comes out with a bold suggestion, the merits of which city planners might consider carefully. The *News Letter* says:

"It is time that New Jersey took steps to eliminate the many small local health units that are obviously incapable of rendering even a semblance of adequate public health protection to their people. Efforts that have been made in the past to remedy this situation have uniformly failed. Have we

not been striking at but a symptom of a more serious underlying evil? May not the criticisms directed at small local governmental units for their failure to provide adequate health protection apply with equal force were we to discuss police, fire, public education, finance or any other governmental function? The plain truth is that we have far too many small governmental units utterly incapable of adequately carrying on the normal functions of government. All branches of local government call for a high degree of specialized skill in their administration. Is not municipal consolidation the true answer to our problem?"

The New Jersey Health and Sanitary Association is an association of public health and sanitary workers in both public and private agencies. This association, with the New Jersey Public Health Association, has a joint committee that is drafting a law to be introduced into the New Jersey State Legislature providing for local health units with populations large enough both to justify and support adequate public health personnel to replace the 566 jurisdictions now responsible for local health service in New Jersey. The chairman of the committee is Dennis J. Sullivan, Chief of the Sanitary Division, Jersey City Department of Health.

THERE WERE GIANTS IN THOSE DAYS

Looking over some old Association records the other day, we discovered that there were elected to membership at the Annual Meeting in 1909 a remarkable group of persons, among whom were Robert S. Breed, Ph.D., Severance Burrage, A. J. Chesley, M.D., Lee K. Frankel, Ph.D., Wade H. Frost, M.D., Joseph Goldberger, M.D., L. L. Lumsden, M.D., Isaac D. Rawlings, M.D., Mark Richardson, M.D., Milton J. Rosenau, M.D., George W. Stiles, M.D., William F. Snow, M.D., Richard F. Slee, M.D., John William Trask,

M.D., Victor C. Vaughan, M.D., and W. F. Wilcox.

As we have handled membership applications since, we have wondered if stars of similar magnitude are now rising whose names will be as familiar and as honored twenty-five years hence.

SKILLFUL INTERPRETATION

There is a growing interest in the problems of the cerebral spastic. Health workers who have not yet met *The Spastic Review*, a quarterly publication "of, for, and by individuals with cerebral palsy or central motor and sensory defects" will be interested in the June, 1944, number. The address is 1751 North Fairmount, Wichita, Kans.

As an example of interpreting the spastic to his normal fellows, the following paragraphs seem exceedingly well pointed.

"Crutches. You can understand about crutches. And braces. You can understand about braces. Or a withered hand. A lazy heart. Eyes that don't see and ears that don't hear. You can understand somewhat all of these deviations from the normal.

"But those healthy looking legs which refuse to walk; that writhing shoulder; that blank face with eyes slightly out of focus; the stubborn tongue—it's harder to understand these human variations.

"It's harder to understand cerebral palsy.

"Maybe it's because you can't catalogue it. Like 'amputated left hand.' Of 'forty-five per cent hearing loss.' Or 'paralyzed right leg.'

"Maybe it's because you are baffled by the inconsistency. Bad performance today but good performance tomorrow; poor handwriting but professional piano playing.

"Maybe it's because you are fooled by outward appearances. You can't see a potential student for seeing the drooling mouth; nor hear the witty

reply for hearing the uncontrolled laughter; nor watch the woven pattern taking shape for watching the clumsy hands."

MEMORIAL ISSUE FOR ARTHUR T.

MC CORMACK, M.D.

The August number of the *Kentucky Medical Journal* is dedicated to Arthur Thomas McCormack, M.D., long the State Health Officer in Kentucky, and in 1937 President of the American Public Health Association, who died August 7, 1943. Those who knew Dr. McCormack will recognize an authentic portrait. Those who never knew this lovable and remarkable personality will meet him in these pages.

MINNESOTA HEALTH AUTHORITIES

PROMOTE HOME SAFETY

According to a report by D. A. Dukelow, M.D., the Director of Public Health in the Minnesota State Department of Health, that state now has safety councils in 85 of its 87 counties, 55 of which have home safety sections. There are also 15 safety councils in larger municipalities, 12 of which have home safety sections.

At a recent meeting of the Minnesota Home Safety Section, Dr. Dukelow was designated to serve on a state-wide Home Safety Planning Board to evaluate the present home safety program and to devise a sound plan which could be accepted by the State Safety Council as its home safety policy, and put into effect locally by revitalized or newly created home safety sections in the constituent safety councils.

PUBLIC HEALTH NURSING AS A CAREER

Those who are counselling with young women about careers in public health nursing will find two supplements from *Public Health Reports* useful for their guidance and as reference material for the nursing candidate. *Supplement No. 133* by Pearl McIver,

Principal Nursing Consultant, is a general review of public health nursing in both its official and unofficial forms. *Supplement No. 176* by Katharine S. Read has special reference to nursing under the hospital services operated by the Public Health Service.

SYPHILIS IN CLEVELAND

Orchids to the Joint Social Hygiene Committee of the Academy of Medicine of Cleveland and the Cleveland Health Council for the publication of the *6th Annual Review* of cases of syphilis under treatment in Cuyahoga County, Ohio, the latest being that for March, 1943.

As Dr. James A. Doull, the Chairman of the Joint Committee, points out in the foreword, there seems not to have been any significant increase in syphilis in Cleveland after 15 months of war, but the situation nevertheless is not one for complacency. As Dr. Doull says, "If a few apparently simple tasks could be accomplished, syphilis could be stamped out, and in a short time."

The coöperative spirit reflected between the medical profession and the Cleveland Health Council, together with the exhaustive analysis prepared by Howard Whipple Green and his associates, sets a standard which any community might well emulate.

IT'S GOING PLACES—THAT SCHOOL HEALTH SECTION!

Credit Lines doffs its hat to the School Health Section for its enterprise in lining up a string of experts to give advice on many problems and to all comers in an area designated "School Health Consultation" at the Wartime Conference in New York City. Dr. Phillip Ollstein, Supervising School Physician, New York City, was one of the consultants. He gives us a look at what went on in a report on his experiences. Dr. Ollstein says:

First we saw a doctor from Rockville Center who wanted to know how to get a

re-vaccination campaign started. The consultants talked over the problem, including plans for coöperating with the County Medical Society, the newspaper, setting aside hours in private physicians' offices and in the hospital clinics for vaccination. It also led to having the Metropolitan Life Insurance Company send him copies of a booklet for distribution and arranging for the company's agents to assist in the distribution of the leaflet. The local director of public health nursing was also reached. We next talked to a lieutenant who is on the staff of the Senate Subcommittee on Wartime Health and Education, of which Senator Pepper is the chairman. He wanted material on dental work as done in schools and figures on defects and corrections. Arrangements have been made to get the material to the lieutenant. The next visitor was the executive from a local tuberculosis and health association. She wanted to know how a teacher-nurse conference worked in a school. Arrangements will be made for her to see one when she is in New York City.

This kind of help is not provided by the formal programs of the Sections. The matter of sharing experiences in informal conversation, at set times in set places, with consultants keeping an established schedule, is capable of development into a most valuable service at Annual Meetings. Other Sections, please note!

A HEALTH DEPARTMENT STUDIES HOME SAFETY

A Home Safety In-Service Course, one of the first organized efforts of its kind attempted on a large scale by a health department, has recently been completed in New York City. The project, suggested by Health Commissioner Ernest L. Stebbins, was developed under the auspices of the City Health Department, the Greater New York Safety Council, and the National Safety Council.

The course, which was required for the Department of Health nurses, food and drug and sanitary inspectors, health officers and assistants in health education, reached a total of 1,235 participants, each of whom was actively

engaged in working with the public. Members of visiting nurse services, having been invited to participate, sent a number of representatives from various parts of the city.

The 15 hour course, covering all phases of Home Safety, was divided into a series of 10 lectures which were given in each of 19 Health Centers, and at the Central Office. These lectures, presented weekly, included visual demonstrations of accident causes and prevention and class discussion. The sessions opened March 20 and continued until June 9, with the health officers presiding at the meetings in their districts. Classroom and teaching facilities were provided by the Department of Health. The subjects covered were as follows: Purposes and Objectives of the Course; The Most Important Cause of Serious Home Accidents—Falls; Other Common Causes of Home Accidents; The Safe Use of Gas and Electricity; Fire Prevention and Fire Protection; Maintaining a Safe Environment; The Care of Infants and Younger Children; Protection of the Aged, Disabled, and Chronically Ill; Play and Traffic Accidents Around the Home; Utilizing Safety Education in the Home; and What Can We Do to Further the Home-Safety Program?

An Advisory Technical Committee which planned the course, developed the teaching staff and is guiding the compilation of a manual on the subject included W. Graham Cole as Chairman. Savel Zimand, Director of the Bureau of Health Education, was in charge of arrangements.

The 44 speakers required to cover the 200 sessions were drawn from such organizations as the Center for Safety Education of New York University, Good Housekeeping Institute, the Fire and Health Departments of the City of New York, and public utility and insurance companies. Participation by class members was carried on through

discussion periods, the reporting of home accidents on forms printed specially for the project, and the submission of a final report. Certificates will be awarded to approximately 900, based on attendance at seven or more sessions and the required report. At present a manual is being compiled which will describe the project, preparatory work, teaching methods, content material of the sessions, and include an extensive bibliography.

Several round table discussions on community organization will be held for the health officers and their assistants in health education. Plans will then go forward for a continuing program of Home Safety Education which will be integrated with the regular health work of the department.

In his address at the opening of the course, Health Commissioner Ernest L. Stebbins stated, "From 1940 through 1943 accidents were the third most important cause of death in New York City. Home accidents increased roughly 14 per cent last year and were responsible for nearly 50 per cent of all accidental deaths reported. These figures do not take into account the injuries and disabilities caused by such accidents. It has been estimated that 7,000 permanent and 275,000 temporary disabilities resulted from home accidents in New York alone. Translated into terms of human suffering and needless loss of life, these cold statistics become an urgent reminder that in the field of home safety a tremendously important and challenging public health job remains to be done. It is the responsibility of the Health Department, through every means at our disposal, to prevent as much of this loss of man-hours and life as possible."

REPORT ON SCHOOL HEALTH PRIORITIES

There is interesting reading in the Report of the Committee on Priorities

of the School Health Section, Mary Ellen Chayer, M.D., *Chairman*. The committee sent a questionnaire to the 118 persons who constituted the membership of the Section this spring, in an attempt to rate the relative importance of health services in common use in school health programs. Forty such services were listed. Opinions were sought on the basis of the ten services to be "most jealously guarded" in event of curtailment of budget or personnel; the ten services judged next in importance; the ten next, and, finally, the ten to be relinquished first. Fifty-seven persons returned the questionnaires with some or all of the items checked.

Only 3 of the 57 would "jealously guard" prophylactic services by dental hygienists. Only 4 would hold out to the last gasp for the promotion of mid-morning lunches. Only 3 place monthly weighing of pupils by teachers in the "must retain" category. Only 4 regard the annual examination of all grades through the twelfth as indispensable practice. On the other hand, 44 would fight for examinations of pupils referred by teachers and nurses, and 33 would insist upon parent conferences with physicians at the health examination. Forty-nine would permit the daily check by nurses of all absentees to go by the board, if necessary, and 44 would give up the teaching of parent classes in home nursing. Thirty-seven would abandon, if they had to, maintenance of school dental clinics and 45 feel the same way about other free school clinics.

From the ratings and the supplementary comment on other services, not listed, to be safeguarded or eliminated, the committee concluded that five factors "seem to stand out which should guide in planning future programs." They are:

1. Emphasis upon better quality of all

services rather than upon numerical frequencies

2. Better administrative planning and evaluation of total program

3. Greater teacher responsibility for health services as well as for health education

4. Increased teacher preparation to take on added responsibilities

5. Better selection and staff education of health personnel

The report was presented at the War-time Conference in October and was received with such interest that it has been mimeographed and mailed to the members of the School Health Section. A limited supply for members of other Sections is available in the Association office.

"MAY HIS TRIBE INCREASE"

As Abou ben Adhem's name, for a different reason, led all the rest, the name of the School Health Section is Number 1 this year in the growth department. The membership of the Section has nearly doubled in twelve months. Last October it stood at 88; on October 1, 1944, the figure was 168. Maybe the reason for the top-drawer position of both Abou and the Section is the same, after all. The Section wouldn't be there, its Secretary, Dr. George M. Wheatley, infers, if the first 88 members were less devoted to the professional well-being of their fellow-workers. Introducing associates into the Section became for them, he says, not a campaign, but a crusade.

HELP WITH FOSTER CHILDREN

The war has inevitably brought need for placing more children in foster homes, and in most areas there is a shortage of foster homes because many who might ordinarily be induced to take children into their homes feel that they cannot do so now. It was with this situation in mind that the Bureau of Child Hygiene of the New York City Department of Health, in coöperation with the New York City Commit-

tee on Mental Hygiene, prepared two pamphlets which certainly should be useful for both the professional worker among children and for the foster parents themselves.

"To Foster Parents" there is addressed a twelve page brochure written in simple language and calculated to bring into easily accessible compass the best experience of child caring agencies now available. "About Foster Chil-

dren" is a brochure of 28 pages with suggestions to nurses and social workers for helping foster parents. In both cases the pamphlets show the evidence of having been developed with the assistance of many workers who are actually in the field.

Credit Lines congratulates Dr. Leona Baumgartner, Chief of the Bureau of Child Hygiene, and her associates for this outstanding achievement.

BOOKS RECEIVED

- ALCOHOL. ITS PHYSIOLOGICAL AND PSYCHOLOGICAL EFFECTS AND THEIR SOCIAL CONSEQUENCES. By Mary Lewis Reed, R.N., rev. ed. Lakeside Publishing Company, 1937. 63 pp. Price, \$.20. Special price for 100 or more.
- AN OUTLINE OF TROPICAL MEDICINE. By Otto Saphir. Chicago: Michael Reese Research Foundation, 1944. 86 pp.. Price, \$1.00.
- THE ART OF RESUSCITATION. By Paluel J. Flagg. New York: Reinhold, 1944. 452 pp. Price, \$5.00.
- ATLAS OF THE BLOOD IN CHILDREN. By Kenneth D. Blackfan and Louis K. Diamond. Illustrations by C. Merrill Leister. New York: Commonwealth Fund, 1944. 320 pp. Price, \$12.00.
- BIBLIOGRAPHIE D'HYGIENE INDUSTRIELLE (Bibliography of Industrial Hygiene). Volume XIV, 1940. Geneva: International Labour Office, 1944. 167 pp. Price, \$1.50.
- DICTIONARY OF SOCIOLOGY. Edited by Henry Pratt Fairchild. New York: Philosophical Library, 1944. 342 pp. Price, \$6.00.
- DIRECTORY OF PSYCHIATRIC CLINICS AND RELATED FACILITIES IN THE UNITED STATES. With Special Reference to Rehabilitation Needs. Compiled jointly by Rehabilitation Division and Community Clinics Division. New York: National Committee for Mental Hygiene, 1944. 62 pp. Price, \$.25.
- FAMILY NUTRITION. 2nd ed. Philadelphia: Philadelphia Child Health Society, 1943. 119 pp. Price, \$.50.
- FOOD REGULATION AND COMPLIANCE. By Arthur D. Herrick. New York: Revere Publishing Company, 1944. 646 pp. Vol. I. Price, \$10.00.
- FUNDAMENTALS OF BACTERIOLOGY. By Martin Frobisher, Jr., 3rd ed. 398 illustrations. Philadelphia: Saunders, 1944. 824 pp. Price, \$4.00.
- THE HANDBOOK OF INDUSTRIAL PSYCHOLOGY. By May Smith. New York: Philosophical Library, 1944. 304 pp. Price, \$5.00.
- HANDBOOK OF THE MOSQUITOES OF NORTH AMERICA. By Robert Matheson. 2nd ed. rev. and amplified. Ithaca: Comstock, 1944. 313 pp. Price, \$4.00.
- THE HOSPITAL HEAD NURSE. By Mary Marvin Wayland, R. Louise Metcalfe McManus and Margene O. Faddis. 2nd ed. New York: Macmillan, 1944. 574 pp. Price, \$3.50.
- HOUSES FOR TOMORROW. By Thomas R. Carskadon. Public Affairs Pamphlet No. 96. New York: Public Affairs Committee, Inc. 32 pp. Price, \$.10.
- LEAD POISONING. By Abraham Cantarow and Max Trumper. Baltimore: Williams & Wilkins, 1944. 264 pp. Price, \$3.00.
- MICROBES THAT CRIPPLE. By T. Arthur Turner with Edward L. Compere. Elyria, Ohio: National Society for Crippled Children, 1944. 241 pp. Price, \$2.50.
- OCCUPATION AND HEALTH. Encyclopaedia of Hygiene, Pathology and Social Welfare, Studied from the Point of View of Labour, Industry and Trades. Special Supplement. Industrial Health in Wartime. Montreal: International Labour Office, 1944. 39 pp. Price, \$.25.
- OHIO PUBLIC HEALTH MANUAL. Part I. Ohio General Code Sections. Part II. Ohio Sanitary Code Regulations. Columbus: Ohio Department of Health, 1944. 551 pp. Price, \$2.00.
- STITT'S DIAGNOSIS, PREVENTION, AND TREAT-

- MENT OF TROPICAL DISEASES. By Richard P. Strong. 7th ed. Philadelphia: Blakiston, 1944. 1827 pp., 398 illustrations (some colored plates). 2 vols. Price, \$21.00.
- THE RIDDLE OF CANCER. By Charles Oberling. Translated by William H. Woglom. New Haven: Yale University Press, 1944. 196 pp. Price, \$3.00.
- WELFARE AT WORK. Britain Advances. By Therle Hughes. New York: Longmans Green, 1944. 32 pp. Price, \$36.
- HANDBOOK OF DIAGNOSIS AND TREATMENT OF VENEREAL DISEASES. By A. E. W. McLachlan, M.B., D.P.H. Baltimore: Williams and Wilkins, 1944. 364 pp. Price, \$5.00.
- ESSAYS IN THE HISTORY OF MEDICINE. Supplements to the Bulletin of the History of Medicine. Edited by Henry E. Sigerist. Baltimore: Johns Hopkins Press, 1944. 358 pp. Price, \$3.50.
- CLINICAL PRACTICE IN INFECTIOUS DISEASES FOR STUDENTS, PRACTITIONERS AND MEDICAL OFFICERS. By E. H. R. Harries, M.D., and M. Mitman, M.D., with a foreword by W. Allen Daley, M.D. Edinburgh: E. & S. Livingstone. 1944. 570 pp. Price, \$6.00.
- SYNOPSIS OF CLINICAL LABORATORY METHODS. By W. E. Bray, M.D. St. Louis, Mo.: Mosby, 1944. 528 pp. Price, \$5.00.
- TABER'S DICTIONARY OF GYNECOLOGY AND OBSTETRICS. By Clarence Wilbur Taber, with the Collaboration of Mario A. Castallo, M.D. Philadelphia: Davis, 1944. Over 700 pp. Price, \$3.50.
- PROCEEDINGS OF THE AMERICAN PHILOSOPHICAL SOCIETY. Symposium on Wartime Advances in Medicine and the R. A. F. Penrose, Jr., Memorial Lecture. Papers read before the American Philosophical Society, Annual General Meeting, April, 1944. Philadelphia: American Philosophical Society. Vol. 88, No. 3, September, 1944. 219 pp. Price, \$1.00.
- BY ORDER OF THE SURGEON GENERAL. By Samuel B. Grubbs, M.D. Greenfield, Ind.: Wm. Mitchell Printing Company. 1943. 332 pp. Complimentary copies to medical schools and associations.
- PROCEEDINGS OF THE FIFTY-SIXTH AND FIFTY-SEVENTH ANNUAL MEETINGS OF THE CONFERENCE OF STATE AND PROVINCIAL HEALTH AUTHORITIES OF NORTH AMERICA. Washington, D. C. 1941 and 1942. 287 pp.
- WATER AND SEWERAGE SYSTEMS IN INDIANA. THE PLANNING OF FUTURE CONSTRUCTION NOW. By John E. Stoner and Pressly S. Sikes. Bureau of Government Research, Department of Government, Bloomington, Ind., and Division of Environmental Sanitation, Indiana State Board of Health, Indianapolis, Ind. 1944. 97 pp. Free from publishers, Public Health Organization for Water and Sewerage Works Development, 1098 N. Michigan St., Indianapolis, Ind.
- A BASIC PLAN FOR STUDENT HEALTH AND HEALTH EDUCATION IN TEACHER-TRAINING INSTITUTIONS. Prepared by the Illinois Joint Committee on School Health. By the Authority of the State of Illinois, Dwight H. Green, Governor, 1944. 40 pp. Free to residents of Illinois.
- A BASIC PLAN FOR HEALTH EDUCATION AND THE SCHOOL HEALTH PROGRAM. Prepared by the Illinois Joint Committee on School Health. By Authority of the State of Illinois, Dwight H. Green, Governor, 1944. 80 pp. Free to residents of Illinois.
- FOOD VALUES OF PORTIONS COMMONLY USED. By Anna De Planter Bowes, M.A., and Charles F. Church, M.D. Philadelphia: Anna De Planter Bowes. 5th ed. 1944. 46 pp. Price, \$1.50.
- FOSTER HOME CARE FOR MENTAL PATIENTS. By Hester B. Crutcher. New York: The Commonwealth Fund. 1944. 199 pp. Price, \$2.00.
- PROCEEDINGS OF THE PUERTO RICO REGIONAL CONFERENCE ON SOCIAL HYGIENE. American Social Hygiene Association, New York, N. Y. Reprinted from the Journal of Social Hygiene, Vol. 30, No. 4, April, 1944. Pub. No. A-565. 110 pp. Price, \$3.5.
- BORDERLANDS OF PSYCHIATRY. By Stanley Cobb. Cambridge: Harvard University Press. 1944. 166 pp. Price, \$2.50.
- HEALTH AND MEDICAL CARE, WASHINGTON COUNTY, NEW YORK. A Study of Resources and Needs for Health and Medical Care. Study made by New York State Health Preparedness Commission in cooperation with Washington County Health Preparedness Committee. 1944. 41 pp.
- HEALTH AND MEDICAL CARE, SENECA COUNTY, NEW YORK. Resources and Needs for Health and Medical Care. Study made by New York State Health Preparedness Commission in cooperation with Seneca County Health Preparedness Committee. 1944. 42 pp.
- HEALTH AND MEDICAL CARE, ONTARIO COUNTY, NEW YORK. Resources and Needs for Health and Medical Care. Study made by New York State Health Preparedness Commission in cooperation with Ontario County Health Preparedness Committee. 1944. 48 pp.
- STREAM SANITATION. By Earle B. Phelps. With a chapter on Stream Microbiology by James B. Lackey. New York: Wiley, 1944. 276 pp. Price, \$3.25.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Artificial Pneumothorax in Pulmonary Tuberculosis. Including Its Relationship to the Broader Aspects of Collapse Therapy—By T. N. Rafferty. New York: Grune & Stratton, 1944. 192 pp. Illus. Price, \$4.00.

This book of less than 200 pages is full of meat. The author, who has had several years of training in a modern sanatorium, presents a digest of the best use of artificial pneumothorax in pulmonary tuberculosis, its indications, contra-indications and complications. The long-term poor results of much of the pneumothorax work of the past the author attributes to poor selection of cases, to persistence in the use of this method after it has proved ineffective and to failure "skilfully and judiciously" to utilize closed pneumolysis early when pleural adhesions are present. Primary thoracoplasty should be done in a number of cases heretofore given pneumothorax treatment. The modern artificial pneumothorax program requires the constant assistance of a competent bronchoscopist and an experienced chest surgeon. Excellent chapters on tracheo-bronchial tuberculosis and the tension cavity, their significance and management, are included.

The book is easily read. There are no logarithms. The few theories introduced are discussed dispassionately. The author shows evidence of good clinical judgment and a surgeon's respect for bodily tissues. This is the best brief discussion of the subject which the reviewer has seen.

JOHN H. KORNIS

Microbiology of Meats—By L. B. Jensen. Champaign, Ill.: Garrard Press, 1942. 252 pp. Price, \$4.00.

The author of this book is a pioneer

in the field of the industrial bacteriology of meats and meat products. The scope of his discussion is indicated by the titles to the twelve chapters:

- Introduction and History
- Some Effects of Sodium Nitrate on Bacteria in Meat
- Gaseous Fermentation in Meat Products by the Genus *Bacillus*
- Bacteriology of Green Discolorations in Meats
- Action of Microorganisms on Fats
- A Study of Ham Souring
- Microbiology of Beef
- Bacteriology of Sausage
- Microbiology of Bacon
- Control of Microorganisms
- Bacteriology of Spices, Salt, Sugar, Paper, and Wood
- Summary of Food Poisoning of Bacterial Origin

The introduction contains an interesting review of the practices followed by ancient peoples in the preservation of meat. The following chapters include a description of problems that are well understood in the meat industry but quite vaguely known to most bacteriologists. Dr. Jensen uses his own studies as the basis for a discussion of the effect of sodium nitrate in the preservation of meat, pointing out the use that is now made of nitrites as a partial substitute for nitrates. He likewise explains a type of gaseous fermentation that takes place in meat under special conditions. This is produced by various species of spore-forming rods that are capable for the most part of forming large quantities of CO₂ from a nitrate-sugar-meat medium. The microorganisms chiefly responsible for the formation of green pigments in meats are those which oxidize hemoglobin, nitrosohemoglobin, nitrosohemochromogen and hematin, while hydrogen-sulphide forming bacteria may also cause green discolora-

tions. In another chapter he explains that the iridescence that sometimes appears on meat fibers is a physical phenomenon which has no sanitary significance.

While the chief problem in the meat industry is the prevention of the spoilage of meats by bacterial action, one chapter is devoted to a discussion of the use of lactobacilli in producing flavors in certain types of sausages. The author restricts his discussion to problems related to spoilage and fermentation, merely making reference to sources of information regarding the pathogenic bacteria that cause diseases of animals and summarizing our knowledge of the types of food poisonings produced by certain types of bacteria that may develop in spoiled meat.

Undoubtedly the author will find opportunity to improve the arrangement and to clarify some obscure places in the text when a second edition of this valuable book is made necessary.

ROBERT S. BREED

Year Book of General Therapeutics, 1943—*Edited by Oscar W. Bethca. Chicago: The Year Book Publishers, Inc., 1944. 480 pp. Price, \$3.00.*

This edition of *The Year Book of General Therapeutics* maintains the tradition of this series of publications. The abstracts are carefully selected, well summarized, and are printed in easily readable format. The abstracts of the articles relating to the present status of penicillin are particularly good.

The busy general practitioner will be faced with a serious difficulty in the use of this book. Though the abstracts are excellent, the average practising physician will not always have the basic knowledge necessary to relate in proper perspective the conclusions of any particular study to the total field of investigation in which the study is performed. The conclusions of a particu-

lar paper may be at variance with the generally accepted interpretation of most of the other research in the field, and the practising physician who is not currently engaged in research, or in following the literature in that field, may not have that information available to him. The editorial notes in this volume are of some assistance here, but they are neither frequent nor extensive enough to solve this difficulty in adequate fashion. More complete and more extensive editorial notes written from this point of view would be of great aid to the practitioner in his evaluation of the information contained in this volume.

This series of year books would also be more valuable if at intervals of five or ten years a summary index were published so that it would be easier for the physician to locate an article which he believes he had read in one of the year books several years previously.

Within the limitations noted, this volume should present important current information for the physician anxious to keep abreast of advances in therapeutics. DAVID D. RUTSTEIN

Health and First Aid—*By Morris Fishbein, M.D., and Leslie W. Irwin, Ph.D. Chicago: Lyons and Carnahan, 1944. 372 pp. Price, \$1.60.*

The authors have presented in the first section of this book basic facts regarding communication of disease and maintenance of health in simple language without the talking down which sometimes accompanies efforts toward simplicity. Descriptions and illustrations of body structure and functioning are found throughout the book in relation to health problems. The second section is devoted to first aid, and adequate reasons are given for suggested procedures for meeting emergencies.

In every chapter will be found pegs on which the newer knowledge of the health sciences may be hung as they

come from research. There are no last words.

The book was written for secondary schools, but in addition it will be found helpful for use in group discussion for adults. Tests that are printed at the close of each chapter are in line with the current interest in tests heard on the radio and practised by groups of all ages in most parts of the country. The book is attractively illustrated.

MARY P. CONNOLLY

The Public Health Nurse in the Community—By Clara B. Rue, R.N., B.S. Philadelphia: Saunders, 1944. 283 pp. Price, \$2.50.

Designed as a textbook for graduate nurse students, this book presents an overview of the principles which underlie public health work, rather than a consideration of specific technics or problems. It includes a historical review of public health nursing, and a description of the social and professional setting in which public health nursing functions. Broad aspects of public health programs in selected services and of organizational patterns and policies are also considered.

As a text for university students, the value of this work is limited by a lack of depth in presentation. Consideration of historical backgrounds, for example, is divorced from the broad social and economic factors which so profoundly affected nursing history. The importance of vital statistics is stressed, but no emphasis is placed upon the dangers of improper interpretation of such data. Little guidance is given the student in the establishment of a scientific and analytical approach to problems as a part of her professional responsibility, or in the use of source materials.

As a source of reference the book suffers from lack of specificity and comprehensiveness. Such important areas as program planning, social legislation,

and establishment of record systems are discussed to some extent, but are not covered fully enough to provide helpful guidance.

Throughout the book there is a well formulated plea for coöperative and professionally sound relationships between nurse, community, and allied professional groups. Chapter references are up-to-date, comprehensive, and well selected.

As a statement of the personal philosophy of a leader in the field of public health nursing, and a convenient collection of accepted principles of public health nursing practice, this book might be a helpful adjunct to the teaching of undergraduate students. As a text for graduate nurses its usefulness would be limited. RUTH FREEMAN

Techniques of Supervision in Public Health Nursing—By Ruth B. Freeman. Philadelphia: Saunders, 1944. 411 pp. Price, \$2.75.

Public health nursing has stood long in need of this book. Its predecessor and pioneer in the field—*Supervision in Public Health Nursing*, by Violet Hodgson—outlined the broad general principles of supervision, offered a philosophy and described some of the tools. Miss Freeman has ventured far deeper into all three aspects, especially the techniques of supervision. Her presentation is readable, interesting, penetrating, and comprehensive. It has its roots in experience.

Throughout this book Miss Freeman is concrete and develops her material in such a way that it has value for all three staff groups concerned with public health nursing service: the administrator, supervisor, and staff nurse. Indeed, some readers will take issue with the breadth of function she assigns to the supervisor, overlapping, as it actually does in practice, the field of administration. Administrators will find the chapters on analyzing the

nursing program, evaluation of performance, office administration and staff health pertinent to their interests. Staff nurses, whether they have an eye on future supervisory positions or not, should read what the staff nurse expects of the supervisor (pp. 23-24), field supervision, and the individual conference (chapters XI and XII), "Record Supervision" (chapter XIII), and "The New Staff Worker" (chapter XVIII). If they read this far, they will delve into the other chapters out of pure interest. It should also be said that appropriating bodies who question the need of supervisors should be referred to Chapter I—"Why Supervision?" Directors of schools of nursing will save time if they read Chapter XIX—"Student Programs," while anyone with responsibility for staff teaching will find Chapter XX on improving teaching ability suggestive. In short, this is a useful book to many.

But primarily this book is for supervisors, and should be owned, read, and discussed by them, and its suggestions tried out, always, as Miss Freeman stresses, with complete flexibility in adapting to local situations. Even experienced supervisors to whom some of the problems are an old story—for instance, case assignment—will discover new food for thought in such chapters as "Group Procedures" (chapter XIV) and "Developing New Supervisors" (chapter XXVI). This reviewer especially recommends Chapter XI—"Observation of the Nurse in the Field," to newly appointed supervisors, as an excellent summing up of past and present thinking on the subject.

The author has been adroit in practicing what she preaches, namely giving literally dozens of practical ways of preventing supervisory difficulties. (See especially chapters VIII, XII and XXIV for these.) She includes selective reading references, a fairly adequate index, and illustrates her recom-

mendations practically with outlines, report forms and examples at appropriate points. Certain happy phrases lend color to necessarily heavy topics, for example: "The supervisor serves as a sort of facilitator." "It is wise to plan for planning," "signs of intellectual malnutrition," and "The intellectually curious are the spice of the supervisor's life." This book is well written, altogether a masterly job which deserves recognition in wide and immediate use.

It is perhaps ungracious after spending several profitable hours with Miss Freeman's book, to pick flaws. In attempting to cover the full range of a supervisor's duties, it was necessary to impinge on the administrator's field. Unfortunately in so doing, some of the shared functions have been only lightly touched upon, such as the supervisor's relationship to boards, committees, and volunteers, her responsibility as a district (state or county) supervisor and in private agencies, as the person responsible for certain phases of cost accounting. More should have been included with respect to service on outside committees (local, state and national) and the supervisor's obligation as a representative of her agency.

Another omission, which seems to this reviewer rather serious, was the failure to urge the employment, paid or volunteered—of special consultants—experts if you will—from outside of the staff for some of the highly technical procedures suggested. For example, statistical service in setting up, carrying out and interpreting studies and surveys; skilled assistance in office lay-out if the staff is large, and easy access to psychiatric advice, not only for the "atypical nurse" with an obvious difficulty, but for other emotional conflicts bound to arise in any group.

In view of the increasing interest in protests for employment, placement, and promotion, a brief discussion of the

types of tests, controlled interviews, and scoring—their advantages and shortcomings—would have been timely, with reference again to the use of a specialist in all testing procedures. I also missed reference to supervisors' meetings, the use of a staff council as an educational device and I found the summaries at the end of each chapter inadequate and unnecessary. But these latter are all minor defects in an outstandingly useful book.

DOROTHY DEMING

Handbook of Nursing in Industry
—By M. Gray Macdonald, R.N.
Philadelphia: Saunders, 1944. 226 pp.
Price, \$2.50.

This handbook of nursing in industry gives practical information on the subject. It will be found useful to the nurse who is already engaged in industrial nursing as well as to the students who plan to enter that field of nursing. It will also be interesting and useful to all nurses employed in any phase of public health nursing. The writer draws on a wealth of knowledge and experience.

The book gives detailed aspects of the responsibilities the industrial nurse is expected to assume. It stresses the need for good basic professional nursing education. Appropriate emphasis is given to professional ethics and the legal aspects of the industrial nurse's work. The organization of a medical department and the physical set-up of the dispensary are outlined. Examples of nursing services of large and small industries of varied types are presented. Record forms are pictured and discussed. The chapters on occupational diseases and workmen's compensation laws are too briefly presented. The section on tuberculosis is inadequate, while a presentation of the venereal diseases is entirely omitted. The reader will need to use modern textbooks for information on these two important subjects.

Throughout the book the industrial worker is pictured as an individual with potential health, emotional, and financial problems which may originate in industry or in his home, or with problems which may be a result of the combination of both environments. The community life is introduced and considered as a part of the whole, lending itself as a good or bad influence as the case may be. A short bibliography is included with each chapter which gives authority to the author's work and direction to the reader.

KATHRYN M. FRANKENFIELD

Simplified Diabetic Management
—By J. T. Beardwood, Jr., M.D., and H. T. Kelly, M.D. Philadelphia: Lippincott, 1944. 172 pp. Price, \$1.50.

This book is intended, according to the authors, to be a simple, understandable manual for the diabetic. It appears, however, to be far from easy for the average diabetic to understand. Many technical medical terms are used. For example, *dietotherapy*, *polyuria*, *etiologic*, and *hyperglycemia* appear in the first five pages of the book without any explanation of their meaning. There is also a confusing change of pace in the book when the authors seem to be talking to the patient and then, in the following sentence, make a comment obviously intended for the physician. After cautioning diabetics about following the advice of well meaning friends to stop taking insulin and substitute various pills or capsules, the statement is made that "It is dangerous to give insulin to a patient on a qualitative diet," etc.

The diets which are recommended and the method of computing diets impresses this reviewer as being a rather complicated system. It would seem better, instead of working out the units of food in $\frac{1}{2}$ and $\frac{2}{3}$ tablespoons of food and $\frac{2}{3}$ slice of bacon, to round off the measures to whole numbers. Direc-

tions are not always clear. Thus, in discussing the Benedict test, nowhere is it stated whether the Benedict solution used is qualitative or quantitative. The formula for Benedict's solution given is one for which the physician can interpret which type is intended. There are signs of careless editing. In the preface to the first edition, three chapters are described, but in the table of contents only two chapters are found.

The physician may profit by this book because it discusses problems of diabetic management, with which the authors have a rich experience.

GEORGE M. WHEATLEY

Community Health and Welfare Expenditures in Wartime, 1942 and 1940—30 Urban Areas—*Washington: Children's Bureau, 1944. Publ. No. 302. 70 pp. Price, \$.20.*

A rather unusual review has been undertaken by a federal agency of community health and welfare expenditures for 1940 and 1942 in 30 urban areas of the United States. As Katharine F. Lenroot of the Children's Bureau says in the foreword, the preparation of this nation for war and its entrance into the war inevitably produced important changes in the scope and nature of the supporting community services. The general outlines of some of these changes are well known to persons connected with specific health and welfare programs. However, a panoramic view of changes in the broad health and welfare fields that have accompanied entrance into the war, has not been available. The expressed need of officials responsible for the planning, organization, and maintenance of local community health and welfare services for a comprehensive and quantitative statement of the adjustment of health and welfare programs to the war situation motivated the undertaking of the present study.

This will prove of interest to those

concerned with the budgeting of local undertakings, especially when they are financed on a coöperative basis.

REGINALD M. ATWATER

The Pathogenesis of Tuberculosis
—By Arnold R. Rich. *Springfield, Ill.: Thomas, 1944. 1,008 pp., including 35 page index, 89 figures, 20 tables, 1,417 references, and 4 charts. Price, \$10.50.*

In this volume of 900 pages of compact reading matter Dr. Rich has critically surveyed present knowledge regarding the bacteriology, immunology, pathology, clinical observation, experimental investigation, epidemiology, and genetics of tuberculosis. In defining the limits of our knowledge the author has sifted the evidence presented by original papers, 1,417 of which are listed in the bibliography. He brings to this subject a keen and critical mind and the training of a mature student of bacteriology, general pathology, and immunology. The result is a book which, while it leaves many controversial matters unsettled, eliminates vagueness of thought regarding such questions as the principles governing the action of tubercle bacilli and the reaction of the host, and the principles relating to native and acquired resistance and to hypersensitivity.

The mechanisms of both native and acquired resistance to tuberculosis are discussed, as are the various factors which influence resistance. The author's long experience in the autopsy room at Baltimore has provided him with material on which to base a sound judgment regarding racial resistance. Considerable space is allotted to hypersensitivity and its rôle in acquired resistance to tuberculosis, and it is shown that there is no correlation between the two. Contrary to general opinion he believes that antibodies play an important rôle in acquired resistance to tuberculosis, despite his inability to prove it.

Dr. Rich analyzes the conclusions of those who stress the importance of heredity in tuberculosis and believes that the question involved is not simply a choice between the influence of heredity and the opportunity for infection, but also the weighing of the influence of heredity against influences which alter the level of native and acquired resistance to the infection. He outlines desired fields for study to elucidate this problem.

The development of the adult (reinfection) type of tuberculosis may not be dependent solely upon acquired resistance, but may also be determined by a change in the reactivity of the body as it becomes an adult. To explain the paradox of a higher mortality rate in adults although their lesions indicate a higher resistance than do those in children, the author postulates that the adult is subject to more influences which act to depress resistance temporarily than are children of the primary school age.

Of interest to public health workers is a chapter dealing with exogenous and endogenous reinfection and with the question as to whether an arrested primary infection is protective or deleterious. Since the evidence shows that both types of reinfection can occur, but information is not available to indicate that one is predominant, there is every reason to try to prevent the exposure of adults to infection as well as to try to improve conditions affecting individual well-being. Whether an arrested primary infection is an asset or a liability depends upon many factors, some of which are unpredictable. It is hardly a proper question to ask as a generalization.

The pathogenesis of tuberculosis is shown by the author to be an extremely complicated process, much of which is still hidden from the understanding, in spite of a staggering amount of investigation. For the student of tuberculosis,

whether in the laboratory or at the bedside, this book provides what this reviewer considers the best comprehensive survey in English of fact and theory on why tuberculosis behaves as it does.

JOHN H. KORNS

Public Works Engineers' Yearbook—1944—Chicago: American Public Works Association, 1944. 320 pp. Price, \$3.75.

This yearbook includes the proceedings of the October, 1943, Public Works Congress, the work of association standing, and special committees and other material, such as the membership roster.

Administrative practices receive some attention, but major emphasis has been placed upon problems related to providing essential public services under wartime conditions and to long-range planning. Of particular interest to sanitarians are papers on the sanitary fill method of garbage disposal, hog feeding of garbage, garbage disposal's relation to trichinosis, sewage treatment plant operation in wartime and trends in water and sewage treatment.

ARTHUR P. MILLER

The Microbiology of Foods—By Fred Wilbur Tanner. (2nd ed.) Champaign, Ill.: Garrard Press, 1944. 1204 pp. Price, \$12.50.

This is a second edition of a book which has a prominent place in public health libraries, now completely rewritten in painstaking and critical manner and greatly expanded to include a wealth of material gleaned from the modern literature. New data on mycology as well as on bacteriology have been added.

Professor Tanner has fully accomplished his expressed intention that this be a source book to the literature on foods as well as to methods of analysis. He makes little attempt to select from, or comment upon the value of, the

methods and reference material the volume contains, but rather presents whatever he considers of interest from wide varieties of sources so that the book is an up-to-date compendium on nearly all phases of the important subject of the microbiology of foods. The material is well documented. The lack of a proper emphasis on food infections and intoxications is explained by reference in the preface to a companion volume on those subjects of which a new edition is being prepared.

Chapters of special interest to the reviewer include one on food preservation, where that subject in all its modern aspects is succinctly presented; another on yeasts, molds and related organisms, and methods for studying them that is unusually complete; a chapter on intestinal microbiology; and one by Fred W. Tanner, Jr., on methods of assaying foods for vitamins. Very complete chapters are devoted to the microbiology of water and sewage, milk, cream and butter, cheese, frozen dairy products, fruits, vegetables, fish and shellfish, meats, eggs, and canned foods.

The volume is attractively printed in very readable type on good paper, well bound into an attractive volume. This book is well indexed. Small type is very fittingly used for presenting methods, formulae and similar material to keep this authoritative reference book on the microbiology of foods within 1,200 pages. The public health official or student cannot afford to be without this exhaustive source of reference material on foods; it will have wide use in the commercial field of food technology.

FRIEND LEE MICKLE

Behavior Changes Resulting from a Study of Communicable Diseases
—By John Urban, Ph.D. *New York: Teachers College, Columbia University, Contributions to Education, No. 896, 1943. 110 pp. Price, \$1.85.*

Although the primary purpose of Dr.

Urban's study was the investigation of behavior changes which may occur as the result of educational experiences at the high school level, it has an especial interest for health workers, because the curriculum designed for the experiment was a six weeks' unit in Communicable Diseases. Comparison of the health information and behavior of the experimental group before and after the course justifies the conclusion that classroom experiences can bring about a marked improvement in such information and behavior. It was further demonstrated that this improvement persisted with but slight loss for at least twelve weeks after the close of the learning period. A failure for similar improvement to take place in the case of a control group provides corroborative evidence.

Attention should be called to the health information tests reproduced in the Appendix which might well offer something of a challenge at levels considerably above that of the high school student.

LILLIAN DICK LONG

Health Counseling for Girls—By Margaret L. Leonard. *New York: Barnes, 1944. 131 pp. Price, \$1.50.*

In this volume Leonard calls attention to a serious lack in the health education program of the average high school. Our secondary schools have long accepted counseling and guidance on an individual basis as a vital means of securing better personal, educational and vocational adjustment for the pupil, but the improvement of health through such an individualized approach has not received even a small portion of the emphasis to which its importance in the welfare of the student entitles it. The improvement of the health of the individual has been left largely to whatever the student can get for himself from routine and frequently uninterpreted health examinations and to classroom instruction on general health problems.

Health examinations and classroom instruction in health are very necessary, but these two activities, without the means of following through to secure individual understanding and action, are inadequate.

Leonard's book focuses attention on the health problems of girls, but has implications for the general health program for the secondary schools. The book is divided into four parts. Part One reviews eight interviews with girls having distinct health problems and then summarizes the major considerations in planning and conducting such health conferences. Part Two presents a plan for making health counseling a part of the total school program, including the use of the school health counselor and the importance of the in-service training of school faculties in student health matters. Part Three gives summaries of actual health problems which arose in the counseling of a group of girls and the methods used in handling each situation. Part Four discusses briefly the relationship of health counseling to other school activities.

Because the volume is brief it must of necessity focus on the technic of health counseling, but in so doing it has not neglected to call attention to the importance of trained health counselors nor to the rôle of other health workers as the nurse and the physician. Some may feel that the importance of a periodic health examination by competent physicians as a basis for any scheme of health counseling has not received sufficient attention.

This book has real value for the school physician and the school administrator, as well as curriculum planning groups interested in setting up a more functional health program. Leonard's plan of health counseling is both a challenge and a suggestion to all those interested in improving the total school health program, not only at the sec-

ondary school level, but it has implications for the elementary school as well. The book will be a real aid to all responsible for health counseling.

RUTH E. BOYNTON

Julius Tandler. *A Biography—By Alfred Goetzl and Ralph Arthur Reynolds. Privately printed, San Francisco, Calif., 1944. 63 pp. Price, \$1.75.*

This little book is a valuable contribution to the history of public health, since it reviews the career of a pioneer whom we should recall with admiration and respect.

Prior to the first world war, Dr. Tandler was well known as a fruitful investigator and a brilliant teacher of anatomy; but in 1920 he abandoned the academic life to become City Welfare Councilor of Vienna. He was primarily responsible for the sound and brilliant developments of public health service in the Austrian capital; and we have still much to learn from the program he developed for child welfare and recreation and for the control of tuberculosis and venereal disease. The authors of this biography summarize Dr. Tandler's attitude toward the rôle of the medical profession in modern life as follows: They point out that under our traditional practice, "The physician must necessarily be economically dependent on the patient under treatment; consequently the frequency of the physician's visits and the type of therapy will be dictated not only by the nature of the patient's illness, but also by the physician's own material interests. This constant conflict of conscience on the part of the physician cannot possibly improve his morale. On the contrary, it may actually be damaged. The physician, consciously or unconsciously, is apt to degenerate into a mere wage-earner, always dissatisfied with his small income and at the same time maintaining an attitude of false independence. Tandler's point of view on

this question explains more clearly why he was criticised so frequently and so violently by his colleagues.

"Opposing this individualistic attitude on the part of practising physicians, Tandler maintained that the individual had a right to health. . . . If society may take steps to provide health for the individual as a protective measure in its own interest then each individual is likewise entitled to claim preservation of his health by society.

Tandler had felt that if the philosophy expressed in this corollary had been put into practice during earlier days, there would today be fewer and less serious problems before the medical profession. He was of the opinion that the physician should occupy a similar position in the social structure to that of the judge, the teacher, and the priest. These latter groups are supported from funds provided by society as a whole."

C.-E. A. WINSLOW

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

A Child's Utopia—In the shadow of the Mayo Clinic a complete infant health project is under way, in which each child of that favored community will have the opportunity to be "given the works" pediatrically speaking.

ALDRICH, C. A. Significance of a Complete Preventive Medical Program for Children. *Am. J. Dis. Child.* 68, 3:168 (Sept.), 1944.

Pioneering Health Center—Without question you will want to know about this unusual London experiment—a combination of health center, club, and settlement—in which for a shilling a week a family can get medical guidance, recreation, and social service. I know of nothing quite like it over here.

BATHF, G. The Peckham Experiment. *Milbank Quart.* 22, 4:352 (Oct.). 1944.

For Air Sterilization—You have read of the bactericidal value of propylene glycol vapor. Have you wanted to know about the mechanisms used for vaporizing the aerosol? A new and

practical device is described and pictured here.

BIGG, E., and JENNINGS, B. H. The Introduction of Glycols for Air Sterilization by a New Vaporizing Method. *J. Indust. Hyg. & Toxicol.*, 26, 9:307 (Nov.), 1944.

Thirteen Reasons for Cherishing a Dog—Here is a psychological paper written by a sociologist. The science may be faulty for all I know, but I can report that the reading of it is a pure delight. Please hunt it out.

BOSSARD, J. H. S. The Mental Hygiene of Owning a Dog. *Ment. Hyg.* 28, 3:403 (July), 1944.

Private and Preventive Medicine—Many of the splendid accomplishments of public health agencies are being nullified by failures in the application of curative medicine. Ways and means of correcting this defect should be considered in any plan to improve health, concludes this sanitarian.

MOULTON, J. W. Medical Care: a Private Enterprise or a Social Service? *Pub. Health Rep.* 59, 43:1405 (Oct. 27), 1944.

Wanted: a Prenatal Case Finding Technique—If you believe—as the writer of this paper does—that the expectant mother profits by visits from a public health nurse, then you'll be interested in his study of reasons for failure to find the prenatal case. Practising physicians do not make adequate use of the nurse. Welfare workers do not refer cases. Only a small proportion of mothers ask for the service on their own initiative.

O'BRIEN, H. R. Nursing Study in a Home Delivery Area. *Pub. Health Nurs.* 36, 11:554 (Nov.), 1944.

Bitter Dose for All—You will be shocked by the very first graph in this paper, which shows the percentages for the ten leading causes of military rejections. Mental disease is way out in front. Comments the writer, conservatively, "Perhaps the most that can be said in comparing gross rejection rates of the two wars is that there is certainly no evidence of any improvement in the physical status of young men since World War I."

PERROTT, G. St. J. Findings of Selective Service Examinations. *Milbank Quart.* 22, 4:358 (Oct.), 1944.

Public Health Under Difficulties—Read this introductory sentence, and you'll want to read the whole paper. "In Hawaii, as in the rest of the world, the average person does not consider public health to be one's business, only when a major epidemic or disaster threatens does one become interested in, helpful to, and critical of the local health board."

PINKERTON, F. J. Wartime Experiences in Hawaii After the Blitz on Pearl Harbor. *J.A.M.A.* 126, 10:625 (Nov. 4), 1944.

Quote—The administration of vitamin supplements to a group of apparently normal persons, consuming the usual American diet, had no demonstrable beneficial effect. **Unquote.**

RUFFIN, J. M., and CAYER, D. The Effect

of Vitamin Supplements on Normal Persons. *J.A.M.A.* 126, 13:823 (Nov. 25), 1944.

Success Story—Solace for your troubles may be found in the story of the desperate means taken to keep the wolf from the door of the Toledo Mental Hygiene Center.

SPENCER, E. A Psychiatric Service. *Survey Midmonthly.* 80, 10:287 (Oct.), 1944.

Where Nurses Practise Preventive Medicine—In addition to giving typhoid, smallpox, and diphtheria immunizing treatments, public health nurses in Georgia make and read tuberculin and Schick tests, give bismuth and arsenicals, administer anti-rabies treatment, make blood smears for malaria, and take an active part in epidemiologic investigations. Don't take my word, read the paper yourself.

WEAVER, A. R. A State-wide Immunization Program. *Pub. Health Nurs.* 36, 11:575 (Nov.), 1944.

Via Air-borne Droplets—Seasonal patterns of measles and chicken pox, though different, are both compatible with the theory of air-borne droplet spread. Scarlet fever, on the other hand, suggests that other means than air-borne droplets play a rôle in its transmission.

WELLS, M. W. The Seasonal Patterns of Measles and Chicken pox. *Am. J. Hyg.* 40, 3:279 (Nov.), 1944.

Efficient and Pleasant Post-War Houses—Now that we, as public health workers, are officially taking an interest in housing we should know what our more experienced British brethren are thinking in this matter. You will not want to miss this useful paper which discusses transitional accommodations, conversion of existing buildings not used for housing, new building methods, and traditional building.

WILLIAMS, P. J. Post-War Housing. *J. Roy. San. Inst.* 64, 4:191 (Oct.), 1944.

ASSOCIATION NEWS

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Raymond J. A. Dalton, M.D., Box 247, Tavares, Fla., Director, Lake County Health Unit

Harold P. Lyon, M.D., C.M., D.P.H., Box 393, Campbellton, N. B., Canada, Directorate of Medical Services, Hygiene, Sanitation and Preventive Medicine Branch, Royal Canadian Air Force

Laboratory Section

Harry E. Brodsky, M.A., 453 N. Sixth St., Philadelphia 23, Pa., Laboratory Director, Industrial Analytical Laboratories

Capt. Oswald A. Bushnell, Sn.C., General Hospital, Bacteriologist, U. S. Army

Cpl. Hugh P. Earle, Bacteriological Technician, U. S. Army

Sgt. O. H. Engendorff, Veterinary Service, Section M, Lincoln Army Air Field, Lincoln 1, Nebr., Meat and Dairy Inspector, Dairy Bacteriologist, U. S. Army

Margaret V. Johnson, State Hygienic Laboratory, Reno, Nev., Serologist-Bacteriologist

Cpl. Jno. D. Randall, Laboratory Technician, 642MHSP, Sec. B-SACPE, Charleston, S. C.

Beatrice Reed, 516 Denver St., Lansing 10, Mich., Bacteriologist, State Dept. of Health

Frederick C. Truelove, 274 W. 95th St., New York, N. Y., Director, The Harvey Laboratories

Harold F. Wingate, 260 Crittenden Blvd., Rochester 7, N. Y., Technician, Univ. of Rochester, School of Medicine and Dentistry

Vital Statistics Section

Blanche E. Castleberry, 403 South Decatur St., Montgomery 5, Ala., Statistician, Bureau of Vital Statistics, State Health Dept.

Robert P. Gage, M.S., Mayo Clinic, Rochester, Minn., Assoc. Statistician

William E. Gordon, Ph.D., Div. of Social Welfare, Globe Bldg., St. Paul 1, Minn., Supervisor, Research and Planning Section

Ethel R. Hawley, State Health Dept., Montgomery 4, Ala., Senior Statistician, Bureau of Vital Statistics

Robert J. Towne, Life Insurance Company of Virginia, Richmond, Va., Actuary

Engineering Section

C. H. Atkins, Fairfax Garden Apts., Apt. 1180, Kansas City, Kan., P.A. Sanitary Engineer, U. S. Public Health Service

Leroy J. Buttolph, Sc.D., Nela Park Engineering Div., General Electric Co., Cleveland 12, Ohio

Industrial Hygiene Section

Perry G. Bartlett, Ph.D., 222 W. Washington Square, Philadelphia, Pa., Insecticide Dept., Rohm and Haas Co.

Alexander Brodsky, M.A., 453 North 6th St., Philadelphia 23, Pa., Industrial Hygienist, Industrial Analytical Laboratories

Alejandro Forero, M.D., Commonwealth Fund, 41 E. 57th St., New York 22, N. Y., Student, DeLamar Institute of Public Health, Columbia University

Food and Nutrition Section

George H. Akau, M.S., 2622 B. Waolani Ave., Honolulu, T.H., Food Commissioner and Analyst, Territorial Board of Health

Vera Mac Nair, Ph.D., 4000 Cathedral Ave., N.W., Washington 16, D. C., Nutrition Consultant, Employees Health Service, U. S. Public Health Service

M. Isabel Patterson, Ph.D., Dept. of Public Health, Worcester, Mass., Nutritionist

Elsie Stark, 88 Lexington Ave., Best Foods Inc., New York, N. Y., Director of Consumer Education

John Van Dolah, M.D., Ph.D., 700 Milwaukee Gas Light Bldg., Milwaukee, Wis., Carnation Co.

Maternal and Child Health Section

Frederick G. Gunlaugson, M.D., M.P.H., State Health Dept., Bismarck, N. D., Director, Division of Maternal and Child Hygiene

Douglas Huntington, 1362 South 3rd East, Salt Lake City, Utah, Interested Citizen

Ruth Jens, M.D., 2400A-West 26th St. Drive, Fruit Valley, Vancouver, Wash., Asst. Health Officer, Clark City-County Health Dept.

Hyman Rappaport, M.D., 3727 103rd St., Corona, N. Y., Assoc. Attending Pediatrician, St. John's Hospital

Public Health Education Section

- Gemma Barzilai, M.D., 68 E. 86th St., New York, N. Y., Surgeon (R), U. S. Public Health Service
- Mary Ellen Hagen, 1825 H. St., Room 207, Bakersfield, Calif., Exec. Secy., Kern County Tuberculosis Assn.
- Edwin P. Jordan, M.D., 535 North Dearborn St., Chicago 10, Ill., Assoc. Editor, American Medical Assn.
- Nancy E. Lawson, Middletown Hospital, Middletown, Ohio, Director of Student Health
- Leah Lehrer, D.H., 1 Hillhouse Ave., New Haven, Conn., Student, Yale School of Public Health
- Raymond W. Leonard, 860 Howard Ave., New Haven, Conn., Student, Yale School of Public Health
- Dorothy E. Ludwig, R.N., Box 159, Newfane, N. Y., Staff Nurse, Niagara County Nursing Service
- Eleanor Brown Merrill, 1790 Broadway, New York, N. Y., Exec. Secy., National Society for the Prevention of Blindness
- Katherine Rasquin, The Tavern, Montpelier, Vt., State Representative, National Foundation for Infantile Paralysis, Inc.
- Margaret M. Wurts, M.D., State Teachers College, Montclair, N. J., College Physician

Public Health Nursing Section

- Judith Abramson, M.A., 208 F. St., Newport News, Va., Public Health Nurse, U. S. Public Health Service
- Marjorie S. Buntin, Box 25, Petersburg, Alaska, Public Health Nurse, Territorial Dept. of Health
- Irene Carn, R.N., A.M., 303 E. 20th St., New York, N. Y., Assoc. Chairman, Dept. of Nursing, Skidmore College
- Virginia L. Christopher, 2624 Olive St., Kansas City, Mo., School Nurse, Kansas City Public Schools
- Alice Clark, R.N., 1943 Harvard Drive, Louisville 5, Ky., Acting Assistant Director, Bureau of Public Health Nursing, Louisville and Jefferson County Health Dept.
- Jane Cook, 58 Lincoln St., East Orange, N. J., Case-work Adviser to Public Health Nurses, Bureau of Venereal Disease Control, State Dept. of Health
- Irene Garland, 414 Walnut St., Rockford, Ill., Director, Visiting Nurses Assn.
- Capt. Alison K. MacBride, UNRRA Regional Nurse Consultant
- Ida R. Mortensen, 270 Turk, San Francisco, Calif., Public Health Nurse
- Irene J. Mullen, 214 East 55th Terrace,

- Kansas City, Mo., School Nurse, Kansas City Public Schools
- Clara Font Ortiz, R.N., Dept. of Public Health, School of Tropical Medicine, San Juan 22, Puerto Rico, Student
- Helen B. Prince, R.N., 60 Guernsey St., Stamford, Conn., Exec. Director, Stamford Visiting Nurse Assn.
- Pauline E. Stahle, R.N., 1365 York Ave., New York 21, N. Y., Staff Nurse, Dept. of Educational Nursing Service, Community Service Society
- Mary H. Thompson, R.N., 104 Dunlap St., Paris, Tenn., Staff Nurse, Henry County Dept. of Public Health
- Margaret T. Welsh, Box 1931, Juneau, Alaska, Public Health Nurse, Territorial Health Dept.
- Ruth B. Wood, M.A., R.N., Room 907, 125 Broad St., Elizabeth 4, N. J., Field Supervisor, Elizabeth Visiting Nurse Assn.

Epidemiology Section

- Jorge Alberto Castro, M.D., 926 Washington, Lima, Peru, S. A., Anti-Plague Service of Peru
- Harold Fujii, 3735 S. 48th St., Lincoln, Nebr., Instructor, Dept. of Biology, Union College
- Lt. Herman E. Marholin, Parasitologist, Malaria Survey Unit
- Robert H. Marks, M.D., 1722 Lanakila St., Honolulu 44, T. H., Director, Bureau of Tuberculosis, Territorial Board of Health

School Health Section

- Albert A. Pilvelis, M.A., 237 Blake St., New Haven, Conn., Director, School Health and Physical Education, Board of Education

Dental Health Section

- Marjorie J. Bretz, 922 S. Park, Kalamazoo 42, Mich., Dental Hygienist, Board of Education
- Charles N. Mahjoubian, D.D.S., 310 Levering Mill Road, Bala-Cynwyd, Pa., School Dentist, Board of Education of Darby, Pa.

Unaffiliated

- Naomi Barer, M.P.H., 583 George St., New Haven, Conn., Student, Yale School of Public Health
- Raymond Chan, M.P.H., 245 E. Chestnut St., Louisville 2, Ky., Medical Student, Univ. of Louisville
- Martin L. Hoffman, 160 North St., Newburgh, N. Y., Studying for D.V.M., Middlesex University
- Andrew J. Perolio, M.D., 519 Dexter Ave., Montgomery 4, Ala., State Director of Typhus Control, State Dept. of Health
- Margaret I. Stein, 150 Juice St., San Fran-

cisco, Calif., Medical Economist, Northern California Union Health Committee

William D. Van Arnem, Johns-Manville Sales Corp., 22 East 40th St., New York 16, N. Y., General Sales Manager, Filtration and Filler Dept.

Clarence O. Wheeler, W. B. Saunders Co., W. Washington Sq., Philadelphia 5, Pa.

DECEASED MEMBERS

John A. Connelly, M.D., Trenton, N. J., Elected Member 1942, Health Officers Section

Fridgeir Olason, M.D., M.P.H., Boston Mass., Elected Member 1943, Health Officers Section

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York 19, N. Y.

POSITIONS AVAILABLE

(Supplemental to lists in November and December Journals)

Wanted: In the City of Hartford, Conn., sanitary engineer or sanitarian to direct activities of Bureau of Food & Sanitation. Salary \$2,997-\$3,595 per year, plus cost of living adjustment and travel. Address Health Dept., Hartford, Conn.

Eastern city tuberculosis and health association seeks statistical and research secretary with training and experience in public health. Public speaking ability an advantage. Salary \$2,750. Address Box K, Employment Service, A.P.H.A.

Wanted: Bacteriologist with educational background equivalent to Master of Science degree, with major in either bacteriology or parasitology. Practical experience in diagnostic medical parasitology required, with 2 or 3 years' experience in public health laboratories in position of supervisory capacity desirable, but not required. Salary range \$210 to \$295. Address Dr. J. C. Willett, Director of Laboratories, Municipal Courts Bldg., Room 35, St. Louis, Mo.

Wanted: Public Health Nurse. Salary \$150 per month with \$35 additional for travel. Roads excellent. Mild climate. Only 26 miles from Columbus. Address Delaware City-County Dept. of Health, Delaware, Ohio

Wanted: Technician to operate milk laboratory and run tests for bacteria count, pH, pasteurization, etc. Contact Mr. Hayman, Dellwood Dairy

Co., Inc., 170 Saw Mill River Road, Yonkers 2, N. Y. "Marble 7-9400."

Wanted: Two full-time physicians, one male and one female, Grade A U. S. school, recently completing year's internship, for active clinic providing general medical and specialty services to large industrial group. Write fully giving personal data, background and training in first letter. Address Box C, Employment Service, A.P.H.A.

Wanted: Public Health Nurse for Colorado city of 14,000 population. Salary \$150 per month, car allowance \$25 per month. Write Health Dept., Boulder, Colo.

Wanted: Medical Director to administer state-wide services for crippled children. Minimum qualifications include one year's residency in a pediatric center and one year of pediatric experience. Entrance salary \$4,500. Write Merit System Council, 812 Littlefield Bldg., Austin 15, Tex.

Wanted: Medical Officers for positions—Director of Preventable Diseases, Director of Maternal & Child Health, District Health Officers. Excellent opportunities for the right men. Salary to start \$4,500 per year and travel expenses. Positions permanent. Write Dr. G. F. Campana, State Health Officer, Bismarck, N. D.

(Note: Dates T & U removed from publication, positions filled)

Opportunities Available

WANTED—(a) Physician thoroughly familiar with malaria and its attendant problems; should be familiar with general measure of sanitation imperative to control of tropical diseases as well as their diagnosis and treatment; medical staff; large American company; Latin America. (b) Pediatrician; to serve as assistant director of health department, school system of fashionable winter resort town; part- or full-time; California. (c) Physicians, men or women, to act as district medical health officers; urban or frontier Alaska; \$5,500, up, depending upon experience and capabilities; unlimited opportunities for research in relationships nutrition, crippling and eye conditions to tuberculosis and housing. (d) Woman physician to direct student health department, large teaching hospital; East. (e) Two physicians experienced in public health, military or industrial medicine for administrative appointments with national organization; duties of one include occasional editorial assignment work with various insurance companies; other position requires considerable field work; minimum \$5,600. (f) Public health physician; duties consist of conducting public health program via boat service among natives in southeastern Alaska; boat equipped with x-ray, clinical laboratories; duties include child welfare; \$5,700-\$6,000. (g) Director, student health department; preferably someone qualified to develop program; co-educational college; enrollment 5,000; town of 10,000; Southwest. **PH-12-1**, The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago, 11.

WANTED—(a) Public health educator; M.S. degree in public health; municipal department of health;

Southwest; \$3,600. (b) Public health nurse to direct teaching program in out-patient department of large university hospital; should be specially prepared in field of teaching and also in public health nursing; opportunity of developing public health program later; minimum \$200, complete maintenance. (c) Director of public health; central metropolis of 250,000; duties consist of making complete survey of health situation in city and county; permanent association; \$250. (d) Student health nurse; duties consist of general public health nursing in co-education college; opportunity to work toward degree; East. (e) Public health nurses; public health training desirable but not required; 40-hour week; \$170; Middle Western metropolis. **PH-12-2**, The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago 11.

WANTED—(a) Bacteriologist trained in medical parasitology; preferably someone with at least master's degree and minimum of two years' experience in public health laboratory; municipal health department; Middle West. (b) Histology technician; department of laboratories, city department of health; well staffed department; vicinity New York City. (c) Bacteriologists, clinical laboratory, technicians qualified in x-ray and laboratory work; interesting positions with department now being organized; experience in public health laboratory procedures desirable; Alaska. (d) Several laboratory technicians, primarily trained in blood work; research project; new hospital and laboratories; \$300. **PH-12-3**, The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago 11.

Situation Wanted

Young dentist recently discharged from the armed forces, is available; splendidly trained; four years, oral surgeon and chief of dental clinic and dental service of large division where his work involved direction of sixty dental officers, eighty enlisted men;

successful private practice before entering service; for further details, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Ill.

cisco, Calif., Medical Economist, Northern California Union Health Committee
 William D. Van Arnem, Johns-Manville Sales Corp., 22 East 40th St., New York 16, N. Y., General Sales Manager, Filtration and Filler Dept.
 Clarence O. Wheeler, W. B. Saunders Co., W. Washington Sq., Philadelphia 5, Pa.

DECEASED MEMBERS

John A. Connelly, M.D., Trenton, N. J., Elected Member 1942, Health Officers Section
 Fridgeir Olason, M.D., M.P.H., Boston Mass., Elected Member 1943, Health Officers Section

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York 19, N. Y.

POSITIONS AVAILABLE

(Supplemental to lists in November and December Journals)

Wanted: In the City of Hartford, Conn., sanitary engineer or sanitarian to direct activities of Bureau of Food & Sanitation. Salary \$2,997-\$3,595 per year, plus cost of living adjustment and travel. Address Health Dept., Hartford, Conn.

Eastern city tuberculosis and health association seeks statistical and research secretary with training and experience in public health. Public speaking ability an advantage. Salary \$2,750. Address Box K, Employment Service, A.P.H.A.

Wanted: Bacteriologist with educational background equivalent to Master of Science degree, with major in either bacteriology or parasitology. Practical experience in diagnostic medical parasitology required, with 2 or 3 years' experience in public health laboratories in position of supervisory capacity desirable, but not required. Salary range \$210 to \$285. Address Dr. J. C. Willett, Director of Laboratories, Municipal Courts Bldg., Room 33, St. Louis, Mo.

Wanted: Public Health Nurse. Salary \$150 per month with \$35 additional for travel. Roads excellent. Mild climate. Only 26 miles from Columbus. Address Delaware City-County Dept. of Health, Delaware, Ohio.

Wanted: Technician to operate milk laboratory and run tests for bacteria count, butterfat, pasteurization, etc. Contact Mr. Hayman, Dellwood Dairy

Co., Inc., 170 Saw Mill River Road, Yonkers 2, N. Y. "Marble 7-9400."

Wanted: Two full-time physicians, one male and one female, Grade A U. S. school, recently completing year's internship, for active clinic providing general medical and specialty services to large industrial group. Write fully giving personal data, background and training in first letter. Address Box C, Employment Service, A.P.H.A.

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Wanted: Medical Director to administer state-wide services for crippled children. Minimum qualifications include one year's residency in a pediatric center and one year of pediatric experience. Entrance salary \$4,500. Write Merit System Council, 812 Littlefield Bldg., Austin 15, Tex.

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WANTED—(a) Public health educator; M.S. degree in public health; municipal department of health;

Southwest; \$3,600. (b) Public health nurse to direct teaching program in out-patient department of large university hospital; should be specially prepared in field of teaching and also in public health nursing; opportunity of developing public health program later; minimum \$200, complete maintenance. (c) Director of public health; central metropolis of 250,000; duties consist of making complete survey of health situation in city and county; permanent association; \$250. (d) Student health nurse; duties consist of general public health nursing in co-education college; opportunity to work toward degree; East. (e) Public health nurses; public health training desirable but not required; 40-hour week; \$170; Middle Western metropolis. **PII-12-2**, The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago 11.

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successful private practice before entering service; for further details, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Ill.

NEWS FROM THE FIELD

ARMED FORCES NEED MORE NURSES

The National Nursing Council for War Service, Inc., New York, N. Y., has transmitted the urgent request of the armed services for additional nurses in supplement to the 50,000 now in service. The Army will require 10,000 at once and also 250 per month to make up for losses from attrition. The Navy will require 2,500 by July 1, 1945, and 150 per month.

The National Nursing Council for War Services, with the full coöperation of the American Red Cross, the Army and Navy Nurse Corps, Procurement and Assignment Service, and the U. S. Public Health Service, has undertaken to publicize this acute need. Mrs. Elmira B. Wickenden, Executive Secretary for the Council, pointed out that more than 50,000 out of a profession with some 265,000 active members have already volunteered, in spite of pressure from home front needs that is probably unequalled in any other service. She called upon the public, on physicians and hospital administrators to coöperate more extensively in substituting more non-professional care on the home front, "The military need is now," according to Mrs. Wickenden, "and everything else in nursing is secondary until it is met."

Mrs. Frances B. Bolton, a member of the U. S. Congress and author of the Bolton Act, has made a special appeal based on her visit to Army Hospitals in England and France. Mrs. Bolton has pointed out that hospitals of 1,000 to 1,500 beds have had to be cut to a staff of 83 nurses because recruitment is reduced in the United States, whereas any civilian hospital of comparable size would have a nursing personnel of several hundred members.

Further information can be obtained from the Council, 1790 Broadway, New York 19, N. Y.

NUTRITION FOUNDATION GRANTS

\$127,750 FOR RESEARCH

The Nutrition Foundation, Inc., New York, N. Y., has announced that at its third annual meeting of the Board of Trustees, new grants of \$127,750 for research projects in nutrition had been made. Since its organization by food and related manufacturers three years ago, the Nutrition Foundation has made appropriations of \$654,700 to support 95 separate research projects in American universities. Total contributions for the support of the Foundation have now exceeded \$1,500,000.

Charles Glenn King, Ph.D., Scientific Director, announced that there were now forty-two universities carrying on research projects under grants by the Nutrition Foundation. A new grant covering a period of two years to Harvard University for research in community nutrition in the sum of \$5,600 was announced as one of a series of similar studies to be initiated in different parts of the country to obtain information correlating nutrition and health.

PUBLIC HEALTH SOCIETY FORMED AT THE UNIVERSITY OF PENNSYLVANIA

A newly formed organization, The Public Health Society of the University of Pennsylvania, had its inaugural dinner on November 8, 1944, in Philadelphia. Among the speakers were Lt. Col. Arthur P. Hitchens, M.C., U.S.A., the guest of honor; Dr. Stuart Mudd, Professor of Bacteriology, and Dr. Charles Wolferth, Professor of Clinical Medicine at the University of Pennsyl-

vania; Dr. Rufus Reeves, Director of Health, and Dr. Hubley R. Owen, Director of Medical Services, Board of Education, Philadelphia; and Dr. Claude P. Brown, Assistant Director of the Pennsylvania State Laboratories.

The officers of the society are:

President, Angelo M. Perri, M.D.

Vice-President, Grant O. Favorite, M.D.

Treasurer, Julian Wessel, D.D.S.

Secretary, Mildred Pfeiffer, M.D.

Membership is not limited to graduates of the University of Pennsylvania, but is open to doctors of medicine, veterinary medicine, dentistry; to nurses, sanitary engineers, social workers, lawyers, and to students of political science. Meetings will be held bi-monthly.

PEDIATRICIANS ADOPT MEDICAL CARE PROGRAM

The American Academy of Pediatrics at its recent annual meeting in St. Louis is said to have adopted unanimously the report of the Committee on Child Health in the Postwar Period. The group which prepared this report consisted of 3 members from the Academy, 3 from the American Pediatric Society, and 3 from the Medical Advisory Board of the Children's Bureau.

With an objective "To make available to all mothers and children in the U.S.A. all essential preventive, diagnostic, and curative medical services of high quality, which used in coöperation with the other services for children, will make this country an ideal place for children to grow into responsible citizens," the committee formulated a report from which the following extracts are taken:

Recognizing that a large number of children do not receive preventive and curative service compatible with present-day standards of good pediatric care, the report attributes these lacks to un-

available services, unwillingness on the part of parents to pay for the services and an unwillingness to use, or lack of knowledge of available facilities.

The report emphasizes "the need of training additional health officers (which) is essential to any comprehensive child health program."

As to health centers—"There is a need for better integration of preventive and curative facilities in both rural and urban communities. In rural areas health centers should be developed at the periphery of a central hospital and administrative center." It is recommended that in these health centers physicians should have available such x-ray and laboratory services as are needed and that these centers should also be used for preventive services and integrated with a central hospital. The center should serve as a place for county medical society meetings, should furnish offices for county and district health departments, and possibly for physicians.

As to well child conferences—"In the rapid development of child health activities in this country, well baby clinics, or child health conferences have performed an extremely valuable service, and in many places such as rural areas and congested districts, must be continued. . . . They should be developed in areas without well child care, to give this service and to be used as educational centers in such areas. It is realized, however, that their organization is not ideal, but a compromise under conditions of shortage of funds and personnel. . . . Our problem is to try to replace them with complete child health service such as exists in the best private pediatric practice."

As to health departments—"There is a lack of proper districting of health departments. To insure the fundamentals for any state health program, it is necessary that each state be so divided into districts, that it is possible

for each district to support a health department consisting of at least a full-time health officer . . . a sanitary engineer, and a supervising public health nurse."

The report emphasizes the relationship of housing, of education, of recreation, and nutrition to any program relating to child health.

The American Academy of Pediatrics in this report requests the Public Health Service and the Children's Bureau to undertake with the Academy a survey in every state to determine the present situation as to facilities and personnel needed to meet the objectives as stated. Included in this review will be the status of county and district health departments and of public health and pediatric nursing, as well as school health services, health centers, well child conferences, hospital facilities and methods and rates of remuneration of professional personnel.

GENERAL SIMMONS RECEIVES THE WALTER REED MEDAL

The American Society of Tropical Medicine at its recent meeting in St. Louis awarded to Brigadier General James Stevens Simmons, USA, Chief, Preventive Medicine Service, Office of the Surgeon General, U. S. Army, the Walter Reed Medal in recognition of meritorious achievement in tropical medicine and for outstanding work in safeguarding the health of American troops. The medal has been awarded on four previous occasions since its establishment in 1934. In 1936 it was awarded posthumously to Major Walter Reed for his experimental work on yellow fever, and another medal was given to the Rockefeller Foundation for its study and control of yellow fever. In 1939 and 1940 the recipients were Dr. William B. Castle of Harvard University and Dr. Herbert Clark of the Gorgas Memorial Laboratory in Panama, respectively. In 1942 two

medals were awarded, one posthumously to Dr. Carlos J. Finlay for his work on yellow fever, and the other to the United States of Brazil "for outstanding work in the eradication of *Anopheles gambiae* in Brazil." General Simmons was also chosen President-Elect of the American Society of Tropical Medicine at this meeting.

NOURSE FELLOWSHIP IN PUBLIC HEALTH OFFERED BY VASSAR COLLEGE

The Mary Pemberton Nourse Fellowship in Public Health is open for award by Vassar College on April 1, 1945. The fellowship, amounting to \$2,500, is offered to a woman college or university graduate for original and outstanding work in public health. The money is intended to enable her to spend a year in study, at an approved institution, in the carrying forward of an original project, or in writing on the subject.

Candidates should submit their applications not later than March 1, 1945. The award will be made by the Vassar College Committee on Graduate Study, upon the nomination of an advisory committee of three selected by the college, one representing public health interests, a physician, and an expert in public health.

Application blanks should be secured from and returned to the President's Office, Vassar College, Poughkeepsie, N. Y.

BAYLOR EXTENDS TEACHING FACILITIES FOR MEDICAL STUDENTS

Austin E. Hill, M.D., M.P.H., Director of Public Health, Houston, Tex., and Howard W. Lundy, Dr.P.H., Director of Health Education in the same department, have announced that the public health course for medical students in the Baylor University College of Medicine, in coöperation with the Houston City Health Department and Harris County Health Department, have

inaugurated a two weeks' required field course in public health for senior medical students of the College of Medicine. All fourth year students, 5 at a time, will be required to spend 9 days in the city health department, 2 days in the county health unit, and must pass a written test covering their experience. A total of 68 hours in the city health department will be divided between administration, statistics and health education, environmental sanitation, preventive medicine and dentistry, including maternal and child hygiene work, public health nursing, school health work, and communicable disease control. The purpose of the new program, according to Dr. Lundy, is to show medical students the work of a health department at a time in their curriculum when they will be best able to realize the full significance of what they see.

**"KNOW YOUR PUBLIC HEALTH
NURSE . . ."**

The National Organization for Public Health Nursing has announced that January 26, 1945, will be the first National Public Health Nursing Day and will be keyed to the slogan "Know Your Public Health Nurse—Who She Is, What She Does." A National Public Health Nursing Day Committee, comprised of public health nurses, board and committee members, and specialists in many fields of publicity, has outlined plans and suggestions for the Day.

Mrs. Charles E. Rolfe, Chairman of the committee, states that there is a gap in understanding between what the public health nurse does and what the community thinks she does, as indicated in an informal poll of citizens recently made in several cities and towns. According to this poll the public health nurse is regarded as just a nurse who drives around in the county car and takes children to clinics, or who gives nursing care only to sick people who

are too poor to go to hospitals. Of 1,000 volunteers interviewed by the Civilian Defense Volunteer Office in one large city, only 50 had ever heard of the public health nurse.

According to Mrs. Rolfe, there is a great variety in programs and each must have a local interpretation. She hopes that it may be made clear that the visiting nurse, the district nurse, the city or county nurse, the school nurse, and the industrial nurse are all public health nurses. The expectation that the public health nurse is a registered graduate nurse who has special preparation in public health should be stressed. It is also important to emphasize the preventive and educational side of the service.

**THE NATIONAL COMMITTEE FOR
EDUCATION ON ALCOHOLISM**

A new weapon against alcoholism was forged recently with the creation of The National Committee for Education on Alcoholism under the sponsorship of the Yale Plan for Alcohol Studies.

The committee's program is premised on three major points: Alcoholism is a disease and the alcoholic is a sick person; the alcoholic can be helped and is worth helping; alcoholism is a public health problem and a public responsibility. The organization is prepared to assist in community control of alcoholism through lectures, literature, aid in organizing local committees, suggesting programs of action, advising on clinics or information centers, training personnel, and securing expert consultants on survey projects.

Arrangements may be made through the committee for a lecture by its executive director, Mrs. Marty Mann, who is prepared to address group meetings on the subject, "Alcoholism, Public Health Problem No. 4." The committee offers this lecture service without cost to recognized organizations. In case of state-wide meetings arrange-

ments may be made for a number of lectures by experts on various phases of the problem.

Further information may be obtained from The National Committee for Education on Alcoholism, New York Academy of Medicine, 2 East 103rd Street, New York 29, New York.—*Health News*, New York State Dept. of Health, Oct. 3, 1944.

CHARLES GLENN KING RECEIVES NUTRITION AWARD

Charles Glenn King, Ph.D., of New York, N. Y., received on November 21 the award of the Grocery Manufacturers Association of America, Inc., "in recognition of his numerous fundamental contributions to nutrition . . . in the isolation in pure form of vitamin C and in studies of its biochemical rôle in nutrition." Dr. King's leadership in the science of nutrition as Scientific Director of the Nutrition Foundation was commended.

The Board of Award was under the Chairmanship of Professor George R. Cowgill of Yale University, and the presentation was made by Dr. Ross Harrison, Chairman of the National Research Council, Washington, D. C.

U.S.P.H.S. HELPS LIBERIA WITH FIVE YEAR HEALTH PLAN

Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service, announced in November that, at the request of the Liberian Government, the Service had designated an all-Negro mission of 11 American physicians, engineers, entomologists, and nurses to develop a 5 year health and sanitation program in Liberia. The mission is under the direction of Dr. John Baldwin West, F.A.P.H.A., formerly District Health Officer of the New York City Department of Health, and now Senior Surgeon in the Public Health Service. With Dr. West are Granville W. Woodson, sanitary engineer, and

John P. Davies, Jr., maintenance superintendent.

According to the Public Health Service, the purpose of the mission will be to bring under control communicable diseases, principally malaria, by the construction and development of sanitation facilities in the country, to protect Allied military personnel against such diseases and to guard against their transmission into the United States.

COUNCIL OF NATIONAL JEWISH TUBER- CULOSIS INSTITUTIONS APPOINTS DIRECTOR

The newly organized Council of National Jewish Tuberculosis Institutions, with headquarters in Denver, Colo., has announced the appointment of Bernard S. Coleman, who since 1934 has served as Secretary of the Tuberculosis Committee of the New York Tuberculosis and Health Association and of the Tuberculosis Sanatorium Conference of Metropolitan New York. Mr. Coleman was Secretary for several years of the Industrial Hygiene Section of the A.P.H.A. and served as Director of Municipal Relief in the New Jersey Emergency Relief Administration and Chairman of the Tuberculosis Committee of the American Hospital Association. Mr. Coleman will take up his residence in Denver in January.

A.P.H.A. MERIT SYSTEM UNIT COMPLETES 100 EXAMINATIONS

The Merit System Unit of the American Public Health Association, with offices at 1790 Broadway, New York, N. Y., announces that it has now prepared over 100 examinations for the selection of public health personnel in 19 states. Since the initiation of this program three years ago by the Association, nearly 10,000 individual questions, or "items," have been developed by the staff of the Unit in the fields of Public Health Nursing, Laboratory Work, Administrative Public Health and En-

vironmental Sanitation. An outstanding feature of the program has been the active support which it has received throughout from public health workers themselves. Over 300 persons engaged in the four public health areas in which examination material is being developed have contributed to the work of the Unit by serving as item constructors and reviewers. It is to no small extent the result of their realistic point of view that the examinations have been accepted where they have been used as fair and sound instruments for selecting qualified personnel.

Dr. George H. Ramsey, Chairman of the Subcommittee on Merit Systems, presided recently at a round-table conference in New York City which was attended by forty persons representing state health departments, state civil service and merit system agencies, universities, the U. S. Public Health Service, and the U. S. Children's Bureau. Summaries of the discussion are available and may be obtained by addressing Lillian D. Long, Ph.D., Merit System Unit, 1790 Broadway, New York 19, N. Y.

SOUTHERN BRANCH, A.P.H.A., ELECTS OFFICERS

At the meeting of the Southern Branch of the American Public Health Association in St. Louis, Mo., November 13-16, the following officers were elected:

President—R. H. Hutcheson, M.D., Nashville, Tenn.

First Vice President—Gracie R. Rowntree, M.D., Louisville, Ky.

Second Vice President—John H. O'Neill, New Orleans, La.

Third Vice President—Mary D. Osborne, Jackson, Miss.

Secretary-Treasurer—John W. Williams, Jr., M.D., Jefferson City, Mo.

Representative to the Governing Council, A.P.H.A.—Felix J. Underwood, M.D., Jackson, Miss.

The Southern Branch Sanitary En-

gineers' and Sanitation Officers' Section elected the following officers:

Chairman—J. B. Miller, Jacksonville, Fla.

Vice Chairman—Joel C. Beall, Memphis, Tenn.

Secretary-Treasurer—J. L. Robertson, Jr., Mexico City, D. F.

The Nursing Section elected the following officers:

Chairman—Christian Causey, New Orleans, La.

Vice Chairman—Ruth Mettinger, Jacksonville, Fla.

Secretary—A. Louise Kinney, St. Louis, Mo.

SOUTH DAKOTA PUBLIC HEALTH ASSOCIATION

At the recent meeting of the South Dakota Public Health Association at Huron, S. D., the following officers were elected:

President—J. M. Butler, M.D., Hot Springs

Vice-President—C. E. Sherwood, M.D., Madison

Secretary-Treasurer—Gilbert Cottam, M.D., Pierre, re-elected

This was the 6th annual meeting of the Association in its present title. The South Dakota Public Health Association has applied for affiliation with the A.P.H.A. and the application has been approved by the Committee on Eligibility. It will be considered by the Governing Council at the 74th Annual Meeting in September, 1945.

FLORIDA PUBLIC HEALTH ASSOCIATION

At its Annual Meeting held in Gainesville December 4-6, the Florida Public Health Association elected the following officers:

President—W. W. Rogers, M.D., Jacksonville

First Vice-President—George A. Dame, M.D., Jacksonville

Second Vice-President—Russell Broughman, Miami

Secretary-Treasurer—Edward M. L'Engle, M.D., Jacksonville

Henry Hanson, M.D., Jacksonville, was appointed representative on the

A.P.H.A. Governing Council with John R. Hoy, Jacksonville, as alternate representative.

CORRECTION

In the article *Educational Implications of the School Health Program* by Dr. George M. Wheatley, in the December issue of the *Journal*, appeared the sentence "Vital statistics have shown an increase in tuberculosis in the 15 to 17 year old group during the war period." This sentence has been corrected in copies of the reprints to read "Since the war's start, there has been a slight increase in tuberculosis mortality in white boys 15 to 19 years old⁵ and an alarming increase in venereal disease in youth.⁶

5. Unpublished data of the Metropolitan Life Insurance Company.

6. Syphilis and Gonorrhea in 1943. New York City Department of Health *Quart. Bull.* Vol. IX, No. 4 (Dec.), 1943.

Safeguarding the City's Health in Wartime. New York City Department of Health *Quart. Bull.* Vol. XII, No. 1 (Mar.), 1944, p. 5.

PROUDLY WE HAIL

Under this title, the December issue of *Channels*, published by the National Publicity Council for Health and Welfare Services, carries an announcement about an honor paid to the Routzahns which we are happy to reprint by permission. We ask that readers substitute the words "Health Education Section" every time they come across "Publicity Council," in which case it will add up to "We, too."

"All Publicity Council members have a proprietary interests in the Routzahns, the redoubtable pair whose talents and enthusiasms and hard work pioneered in the twin fields of health education and social work publicity for more than 30 years. . . .

"To Mary Swain Routzahn and posthumously to Evert G. Routzahn on November 14, 1944, went the first presentation of the Elizabeth S. Prentiss National Award in Health Education. Established as a memorial to Mrs. Prentiss and as a spur to further progress in health education, the award was founded by the Board of Trustees of the

Cleveland Health Museum and will be presented annually.

"To consider possible candidates, the trustees appointed a National Advisory Committee consisting of some of the country's best known health educators. Its chairman was Dr. W. W. Bauer, director of the bureau of health education, American Medical Association; its members were Dr. Donald B. Armstrong, Metropolitan Life Insurance Co., Mary Connolly, School of Public Health, University of Michigan; Dr. James A. Doull, professor of public health, Western Reserve University; Howard Whipple Green, secretary of the Cleveland Health Council; Col. Ira V. Hiscock, U. S. Army Sanitary Corps and Dr. Bruno Gebhard, director of the Museum.

"The Routzahns, who separately or together founded the Public Health Section of the American Public Health Association, organized the first travelling exhibit campaign on tuberculosis, developed the Department of Social Work Interpretation of the Russell Sage Foundation which Mrs. Routzahn now directs, founded and guided the National Publicity Council, discovered and encouraged many of the country's other leading health educators, have long been appreciated by their colleagues. This public recognition is only the logical consequence of the significant work they have done."

PERSONALS

Central States

DONALDSON F. RAWLINGS, M.D.,† Cairo, Ill., has resigned as Health Officer of the Alexander-Pulaski County Health Unit to enter the U. S. Navy.

SAMUEL S. REINGLASS, M.D.,† Dixon, Ill., resigned as Health Officer of Lee County, effective October 1, to enter private practice in Canton, Ohio.

CLARENCE E. SHERWOOD, M.D., Madison, S. D., has been appointed to the State Board of Health to fill the unexpired term of the late JAMES B. VAUGHN, M.D.,† according to the *Journal Lancet*.

RUTH SUMNER, Ph.D.,† has been appointed acting chief of the Division of Public Health Instruction, Illinois State Department of Public Health.

Ill., during the leave of absence of Leona de Maré East, A.B., who is continuing her graduate training in Health Education at the University of North Carolina School of Public Health.

VERNON M. WINKLE, M.D.,† Director of the District Health Unit at Gering, Neb., has been named Epidemiologist and Assistant Director of the Health Department of the Topeka-Shawnee Health Department; he will also be in charge of the School Health Services of the unit.

Eastern States

DONALD B. ARMSTRONG, M.D.,* Second Vice President of the Metropolitan Life Insurance Company, New York, and in charge of the Welfare Department is currently serving as Vice President for Home Safety in the National Safety Council. Dr. Armstrong is also Chairman of the Subcommittee on Accident Prevention of the Committee on Administrative Practice, A.P.H.A.

BERNARD S. COLEMAN, S.B.,* who for the past 10 years has served as Secretary of the Tuberculosis Committee of the New York Tuberculosis and Health Association, has accepted a position as Director of the Council of National Jewish Tuberculosis Institutions. Mr. Coleman will take up his duties on January 2, 1945, with Headquarters in Denver, Colo. No successor to Mr. Coleman has yet been chosen.

VLADO A. GETTING, M.D., DR.P.H.,* Commissioner of the Massachusetts Department of Public Health, Boston, has been elected Secretary of the Association of State and Territorial Health Officers.

LT. COL. ARTHUR PARKER HITCHENS, M.C., U.S.A.,* Health Commissioner of Wilmington, Del., and Professor of Public Health and Preventive Medicine, School of Medicine, Uni-

versity of Pennsylvania, has been made Honorary President of The Public Health Society of the University of Pennsylvania.

PAUL A. LEMBCKE, M.D.,† Rochester, N. Y., District Number 4 Health Officer, under leave of absence granted by the New York State Department of Health, has been appointed Director of Study for the New York State Temporary Commission of Medical Care, according to the Rochester *Democrat and Chronicle*. Dr. Lembcke served as State Epidemiologist in 1939. Offices of the commission have been opened in the Terminal Building, Rochester.

EUGENE MEYER, Editor and Publisher of the *Washington Post*, was elected President of the National Committee for Mental Hygiene at a meeting of the Board of Directors, New York, December 14. Mr. Meyer is the first layman to be chosen President of the National Committee in the 34 years since it was founded by the late Clifford W. Beers.

HARRIET IDA PICKENS,† for 5 years Executive Secretary of the New York Tuberculosis and Health Association's Harlem Committee, has been sworn in as a Women's Reserve of the United States Naval Reserve. She has been granted a leave of absence for the duration. In the absence of Miss Pickens, ANNA J. WEIR, Assistant Secretary, has been appointed to carry on.

SELMAN A. WAKSMAN of the New Jersey Agricultural Experiment Station, New Brunswick, gave the second Harvey Society Lecture of the current series at the New York Academy of Medicine on November 16. His subject was The Production in Nature of Antibiotics.

ANDREW J. WARREN, M.D.,* who has

* Fellow A.P.H.A.

† Member A.P.H.A.

been associated with the International Health Division of the Rockefeller Foundation since 1921, has been appointed Assistant Director.

Southern States

WILLIAM B. BAILEY, M.D.,[†] Montgomery, W. Va., has been appointed Health Director for Norfolk and Princess Anne Counties.

GLENN H. BAIRD, M.D.,[†] has resigned as Venereal Disease Control Officer of the Richmond City Health Department to become Health Officer of the Smyth-Washington-Bristol Health District, with headquarters in Abingdon, Va.

THOMAS GORDON BENNETT, Ph.D., formerly of the U. S. Public Health Service and once Superintendent of Schools for Calvert and Queen Anne Counties, Md., has been appointed consultant in Health Education to the Virginia Department of Education.

LT. (jg) HARRY BOATWRIGHT (MC), who graduated at the Medical College of the State of South Carolina, Charleston, September 16, and who has received a commission in the U. S. Naval Reserve, was during his graduation exercises presented with the Ravenel Cup for his thesis in the field of public health. The cup is awarded annually by Dr. Mazýck P. Ravenel.

WILLIAM A. BROWNE, M.D., City Health Officer of Alexandria, Va., has been appointed Epidemiologist of Richmond effective October 1. Dr. Browne held a similar position in the New York City Health Department. He carried on a survey of Scarlet Fever in Richmond under the auspices of the Rockefeller Foundation.

Western States

HARRISON EILERS, M.D.,[†] Health Officer of San Luis Obispo, Calif.,

has been appointed Health Officer of Long Beach, succeeding FRANK W. STEWART, M.D., who resigned November 1.

JOSEPH H. KINNAMAN, M.D., M.P.H.,* has resigned as Director of the Kay County Health Department, Ponca City, Okla., to accept an appointment as Deputy Commissioner of Health of the Nassau County Health Dept., Mineola, N. Y., where he will be associated with EARLE G. BROWN, M.D., Commissioner.

* Fellow A.P.H.A.

† Member A.P.H.A.

CONFERENCES AND DATES

American Association of Schools of Social Work. Cleveland, O. January 25-27.

American Medical Association—Seventh Annual Congress on Industrial Health. Drake Hotel, Chicago, Ill. February 13-15.

American Medical Association—91st Annual Session. Philadelphia, Pa. June 18-22.

American Society of Civil Engineers. New York, N. Y. January 17-19.

American Society of Heating and Ventilating Engineers—51st Annual Meeting. Hotel Statler, Boston, Mass. January 22-24.

American Water Works Association—New York Section—Mid-winter Luncheon Meeting, Pennsylvania Hotel, New York, N. Y. January 17.

Minnesota Section — Minneapolis, Minn. March 9-10.

Illinois Section—Chicago, Ill. March 12-13.

Indiana Section—Lafayette, Ind. March 15-16.

Canadian Section—Toronto, Ont., Canada. March 21-23.

Ohio Section—Columbus, Ohio. April 5-6.

Montana Section—Lewiston, Mont. April 13-14.

New York Section—Elmira, N. Y. April 19-20.

Pacific Northwest Section—Gearhart, Ore. May 18-19.

Minnesota State Medical Association—Ninety-second Annual Session. St. Paul, Minn. May 21-23.

New York Tuberculosis and Health Association—Annual Conference. Hotel Pennsylvania, New York, N. Y. February 7.

American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 35

February, 1945

Number 2

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Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$5.00 per year for United States, Cuba and Mexico, South and Central America; \$5.50 for Canada; and \$6.00 for other countries. Single copies 50 cents postpaid. Copyright, 1945, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to the Managing Editor, Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932.
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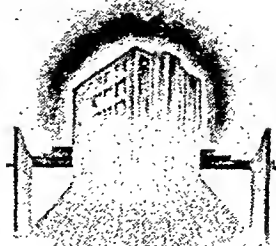
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American Journal of Public Health and THE NATION'S HEALTH

Volume 35

February, 1945

Number 2

Today's Global Frontiers in Public Health

I. A Pattern for Coöperative Public Health *

GEORGE C. DUNHAM, M.D., DR.P.H., F.A.P.H.A.

*Major General, U. S. Army, President, Institute of Inter-American Affairs, and
Assistant Coördinator of the Office of the Coördinator of Inter-American
Affairs, Washington, D. C.*

COÖPERATION in protecting the health of an international public is requisite in a world that has outgrown isolationism. Not only the control of disease, but also improved social and economic relationships can result when people on different sides of the street or different sides of the world work together for health, the most valuable possession of man—"the greatest commodity in the world."

The problems to be handled are not new or strange. They are the familiar problems of the community, where environmental sanitation, preventive medicine, and public awareness are fundamental for the control of disease and the provision of maximum health.

In the extension of public health its workers must be warriors but also peace-loving men. They must wage unceasing battle against unfavorable environment; but must equally work

in close accord with other human beings. Since the great scientific awakening of the 19th century, the weapons for the conquest of disease have become increasingly powerful. But public health work must be based upon coöperation as well as upon conquest. It is a sad reflection upon our civilization that the development of human relationships for the promotion of the common good has not kept pace with our knowledge of the cause of disease and specific control measures, as well as industrial efficiency and the mastery of time and space. The achievement of coöperation in the extension of public health is of more far-reaching consequence than the prevention and control of disease alone, as harmonious effort and exchange of ideas for attainment of this objective provide a sound basis for friendship and understanding.

INTERNATIONAL HEALTH
ORGANIZATIONS

International organization for health

* Presented before the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

work may be said to have originated when, in 1851, plague and yellow fever were responsible for the first attempt of governments to agree on common action against disease. The first international sanitary convention, held in Venice in 1892, was the result of cholera epidemics in Europe. Following this, a series of international health conferences resulted in the establishment of the Office d'Hygiene Publique, in 1907, with one of its primary duties the collection and dissemination of information on the prevalence and movement of disease.

After the War of 1914-1918 the Health Organisation of the League of Nations and the Industrial Health Service of the International Labour Organisation were established. Much of the work of the Health Organisation was carried out by international committees of experts, whose function was to facilitate the coöperation of national health administrations in matters of common interest or concern. The Industrial Health Service of the International Labour Organisation was initiated to stimulate national legislation on subjects relating to health and labor.

The International Sanitary Bureau, later known as the Pan American Sanitary Bureau, was created by the First International Sanitary Conference of American Republics in 1902. The Bureau is supported by contributions from the signatory governments and stands ready to advise and assist Latin American Governments in combating epidemic diseases, in formulating sanitary codes, and in other fields of hygiene.

There are in addition other international unions or associations concerned with the alleviation of human suffering, such as the international associations on statistics, tuberculosis, child welfare, venereal disease, cancer, mental hygiene, and the prevention of blindness.

The main function of all of these official and unofficial agencies has usually been the provision of technical advice and consultation. The work of the League of Red Cross Societies and of the International Health Division of the Rockefeller Foundation has in contrast usually been based on a survey, requested by a particular area, and the initiation of a program supported, not only by a gift of funds, but also usually by national resources. The aid is always temporary and the outside agents act as counsellors or technicians.

INTER-AMERICAN COÖPERATIVE PUBLIC HEALTH PROGRAM

The conference of Foreign Ministers of the American Republics held in Rio de Janeiro, Brazil, in January, 1942, approved a resolution to the effect that the nations of the Western Hemisphere should undertake coöperative public health measures. In February, 1942, a Division of Health and Sanitation was organized in the Office of the Coordinator of Inter-American Affairs for the purpose of implementing this resolution. The Government of the United States authorized the Coördinator of Inter-American Affairs to set up a corporation known as The Institute of Inter-American Affairs to organize and supervise the Inter-American Coöperative Public Health program, administer the funds, and execute coöperative agreements with the other American Republics. The Institute of Inter-American Affairs is financed by funds appropriated by the Government of the United States.

The broad overall objective of the Inter-American Coöperative Public Health program is to coöperate with the governments of the other American Republics by means of improvement of the public health, in promoting economic stability, economic development and prosperity, to the end that there will be constantly increasing better-

ment of commercial relations between the Republics, and between the other American Republics and the United States, to the mutual advantage of the countries concerned. On the technical and professional side the objective of the program is to provide, through coöperative services, for the pooling of our knowledge of public health measures and for the better utilization in all the American Republics of all the public health resources and knowledge available to us.

The coöperative public health program is now in operation in 18 of the 20 other American Republics, that is, in Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela. A coöperative public health service is organized within the ministry or department of health, based on an agreement between the Institute of Inter-American Affairs and the government of the country. This coöperative service is financed in part by funds contributed by the Institute of Inter-American Affairs and in part by funds appropriated by the government of the country. The Institute has sent to each country a field party composed of physicians, engineers, and other technical and administrative personnel. The individual in charge of the field party, who is either a physician or engineer, is known as the Chief of Field Party. He represents the Institute in the country and is also director of the coöperative service by appointment by the government of the country. In the latter capacity, the Chief of Field Party is usually also an official of the ministry or the department of health. The public health activities to be undertaken and the expenditures of the joint funds for that purpose are all mutually agreed upon by the minister or director of health of the country and

the Chief of Field Party as representative of the Institute. All agreements are made locally between these two men, and nothing of this nature is referred to the Washington headquarters of the Institute. The work thus agreed upon is then performed by the coöperative service under the leadership of the Chief of Field Party, serving as director of the coöperative service, but under the supervision of the minister or director of health, all in accordance with the previous agreements. This kind of organization provides for full coöperation in the performance of all phases of the work.

The coöperative services are staffed by both North American and national personnel. The North American personnel are being and will continue to be gradually replaced by well trained national workers. At the present time, in the 18 countries, there are 11,083 national workers and 219 citizens of the United States employed on the program.

The Inter-American Coöperative Public Health program will continue for a varying length of time in the different countries, dependent upon the terms of the agreements made in establishing the coöperating services. In so far as can be determined at this time, the program as a whole will terminate at the end of 1948.

The Institute has been fortunate in securing the assistance of leading authorities from the United States and the other Americas for special consultation in many fields. Close liaison is maintained with numerous governmental and other agencies in the United States. These include the Pan American Sanitary Bureau, the National Research Council, the United States Army, Navy, and Public Health Service, the American Public Health Association, the International Health Division of the Rockefeller Foundation, and various medical schools and universities.

In many of the republics the Services are continuing and extending activities previously initiated by the health departments. In others, long needed programs are being introduced. A major feature of the work is the provision of increased opportunity for the utilization of preventive measures through the construction, equipping and operation of hospitals, dispensaries, clinics, and health centers. One of the long-range and most important objectives of the cooperative public health services is to assist the national departments of health to progress along modern lines, with regional development by means of modern health centers providing complete health services and directed by full-time health officers. In many of these countries, the health work is focalized at the capital towns and organization is not on a country-wide basis. More decentralization is needed in view of the widely scattered population and limited transportation facilities. The aim of the Inter-American Cooperative Health Services has been to construct, equip and operate for a period of time one or more up-to-date health centers to serve as a demonstration and model for others in the future.

The Services are also carrying on fundamental and widespread activities for improved water supply systems, for sewage disposal, insect abatement, and other sanitary measures; education of professional and lay groups in public health measures; and direction and evaluation of control measures through field and laboratory investigations. Health problems of particular areas have necessitated scientific studies by men especially trained in particular fields of research. New methods have been developed to meet local engineering problems in some places. A number of articles have been published or are in press describing some of the original work accomplished.

A detailed description of the work in

Paraguay will serve as an example of the program within one country. Similar programs are being carried out in the other countries. Paraguay is an inland country in the heart of South America, with a population of about 1,000,000. Transportation facilities are limited and the population is concentrated in widely scattered communities. Development of a system of health centers has been a major activity designed to meet the national need for decentralization of health services. Four of the five health centers provided have been made part of an already established hospital unit. The laboratory, pharmacy, and x-ray facilities of the new health centers are designed to serve the hospital as well. Headquarters are provided for public health nursing, and sanitary inspection, and clinics for maternal and child health, immunization, nutrition, dental hygiene, and tuberculosis and venereal disease control.

In the Barrio Obrero district of Asuncion, the capital of Paraguay, the first activity undertaken was the home visiting of all families in the immediate district. Over 1,500 homes were visited and records obtained on more than 7,000 people. Social, economic, and medical data were obtained on all families. Following the findings of this survey, a hookworm campaign was initiated in the district and health education concentrated on this subject. Sanitary inspectors paid house-to-house visits for collection of stool specimens, distribution of medicine, and instruction of individual families. The sanitary engineering section was occupied principally with production of a suitable type privy, privy inspection, and advice on construction of water supplies (wells and cisterns). In the survey nutrition appeared as another primary health education need. A nutrition clinic was established at the center and instruction given to the

families. A demonstration garden was planted alongside the health center to show how and what vegetables could be grown. Some plots were also available for families themselves to develop. Modern health centers of this type have now been completed and are in operation in 9 countries.

In Asuncion, the Services are constructing a Ministry of Health building, with quarters for a large health center and a public health laboratory. A leper preventorium, a leprosarium, and a tuberculosis hospital are also being built. Water supply and sewerage surveys have been conducted in the capital and work has been started on a sewerage system.

Public health education has been accelerated and expanded. Radio broadcasts are given regularly and health education conferences organized in schools, factories, health centers, and other gathering places. Medical textbooks and journals have been supplied to the Faculty of Medicine and seven of the larger hospitals. Under the training program, 19 Paraguayan physicians and other professional men have come to the United States for graduate work in public health.

As another example, the work being done at Belem, Brazil, may be cited. Here the Coöperative Service of Brazil conducts a training and research center for professional and technical personnel, including doctors, nurses, laboratory workers, and sanitary inspectors. This work was made possible only because the staff, equipment, and building of the Malaria Control Service of the Northeast and of the Instituto de Patologia Experimental Evandro Chagas, in Belem, were assigned to the Service by the Brazilian Government. A 40 bed hospital was constructed with operating rooms, obstetrical department, outpatient department, lecture rooms, laboratory, and library. This provides clinical material for research and train-

ing facilities for doctors. A three month postgraduate course at Belem in preventive medicine, public health, and sanitation is required for all doctors before undertaking work at the health posts in the Amazon Valley. In addition to its training activities, the laboratory has conducted studies on malaria, intestinal parasites, leishmaniasis, trypanosomiasis, filariasis, and routine laboratory work, such as the bacteriological study of clinical specimens, analyses of drinking water, milk, blood matching, and stool and urine examinations.

Another example of how international coöperation in public health can aid the economic development of potentially rich areas otherwise retarded by disease problems is being demonstrated at Chimbote, Peru. Chimbote has one of the best ports on the west coast of South America. In 1940 the population was 4,500. It suffered continuously from endemic malaria, intestinal parasites, and outbreaks of water-borne diseases. There was no hospital and no public water supply or sewerage system. Untreated spring water was transported by railway tank cars and distributed through the town by donkey carts.

The Government of Peru is constructing modern port facilities at Chimbote for the successful economic development of that region. The Co-operative Public Health Service of Peru undertook to improve the health conditions in the area.

Permanent mosquito control was begun early in 1943 by drainage of swamps and lagoons into the sea. A water supply system is under construction, as are sewerage facilities, a hospital and a health center. One completed unit of the hospital serves temporarily as a dispensary and clinic. Health education activities are under way.

The Peruvian Government plans to

develop this area with a steel industry; a dam for hydro-electric power, and extensive agricultural irrigation projects. These industrial developments could not materialize and flourish in the former unhealthy environment. Here health protection and economic growth are parallel.

It is felt that perhaps the most fundamental contribution that can be made for the strengthening of public health work is the provision of professional training for its personnel. Under the health training program 300 persons from the southern countries, for the most part physicians and engineers, have already been brought to the United States for study. It is planned that about 800 will be trained in the United States during the life of the program.

The development of nurses' training is receiving major emphasis in the other republics through professional schools and other public health and nurses' aide training. Sanitary engineers, inspectors, midwives, laboratory technicians, and practical nurses are being trained for more efficient service.

Not only through organized classes but also in the actual performance of the work, more professional and technical workers than ever before are gaining knowledge of the principles and practice of public health. In coöperation with the U. S. Army and the Association of Medical Colleges, physicians from the United States are in turn visiting the other Americas to obtain first hand knowledge of tropical diseases and their control.

SPECIAL PROJECTS

The Institute of Inter-American Affairs has also allocated funds for a number of special projects. Although financed by the Institute, these projects are not under the supervision of the coöperative services, but constitute separate activities. Some of them are conducted under the immediate direc-

tion of the Pan American Sanitary Bureau, such as additional public health nurses requested by the other American Republics; the visit of medical and public health experts from the other Americas to the 1943 meeting of the American Public Health Association and to institutions and cities of special public health interest; the collection of biostatistical and epidemiological information from the southern republics, and onchocerciasis studies and control in Guatemala and Mexico.

A coöperative program now under way with the United States Navy and the Institute of Indian Affairs is concerned with the special public health problems among the Indians of some of the other American Republics. A typhus fever study is being performed in collaboration with the Army Medical Laboratory and national health departments. A project for the collection of pathological specimens for teaching and study in the United States, and as diagnostic aids in the southern republics where this work is being done, is being conducted with the support of the Army Medical Laboratory, the U. S. Public Health Service, and the health departments of the various countries.

SUMMARY AND CONCLUSIONS

The constant aim of all the enlightened leaders of the nations of the Western Hemisphere is to achieve economic development and prosperity for the peoples of their respective countries. It was realized that, in order to bring about that effect, greater weight must be given to the public health, closer attention must be focused upon it, not only in the sense of controlling epidemic diseases, but also from the aspect of bringing about conditions of public health appropriate to the development of healthy people able to cope with the economic problems. It was recognized that there must be uniformity

of public health procedures and practices throughout the hemisphere. It was foreseen that all the American Republics must work together and apply in close collaboration and harmony the tested measures of public health for the mutual benefit of all.

The Inter-American Cooperative Public Health program during the 2½ years that it has been in operation has demonstrated in a realistic manner that coöperation between the nations of the Western Hemisphere in the field of public health can be attained, that it is feasible and that it is profitable for all the peoples concerned. The methods employed by the Institute of Inter-American Affairs in promoting the coöperative program are unique in many respects. Funds, personnel, and other resources of the Institute and of the coöperating country have been pooled and utilized to develop a coöperative service. The work is not performed by a foreign agency but, on the contrary, the operating organization is a coöperative service which is actually an integral part of the government of the country. While the Institute of Inter-American Affairs, operating as an agency of the Government of the United States, has initiated the program and represents the interests of the United States in the execution of the program, nevertheless, the Chief

of Field Party of the Institute in a given country deals directly with the Minister or Director of Health of that country in all matters pertaining to the operation of the coöperative service. He discusses and negotiates all the necessary agreements with the Minister or Director of Health of the country and as representative of the Institute makes all decisions without reference to the Washington office of the Institute.

Every one of the 18 coöperating countries is giving wholehearted and sincere support to the coöperative program and has been willing and eager to make available funds and personnel on a partnership basis for the execution of the program. The objectives which are being sought and which are being attained by this program are of mutual benefit to the coöperating country and to the United States, not only in terms of improvement in the public health of the Western Hemisphere, but also as most important factors in promoting economic progress and facilitating commercial relations between the United States and the other American Republics.

The demonstrable results of the Inter-American Coöperative Public Health program justify the hope that means can be found to carry on this or similar programs for many years to come.

Today's Global Frontiers in Public Health

II. Regional Health Organization in the Far East *

SZEMING SZE, M.D.

Far Eastern Unit of Health Division, UNRRA, Washington, D. C.

REGIONAL health organizations already exist, in more or less definite form, in four regions—America, Europe, the Far East, and the Middle East. Neither in concept nor in function can any of these organizations be regarded as perfect, because they have not been planned as units of a global structure, nor do they between them cover the whole world. There are still some areas, such as Africa (south of the desert belt) and parts of Russia, which do not fall within any of these regions. However, because they have just grown, step by step, as the need in each instance arose, they do serve a useful and definite purpose in each region.

In discussing regional organization in the Far East, the first question to be answered is: "What is the Far East?" If one follows the definition of UNRRA, it is composed of "eastern continental Asia, the East Indies, Philippine Islands, Australia, New Zealand, and the islands of the eastern Indian and western Pacific Oceans." In other words it is that section of the globe which stretches from the western border of India to the International Date Line in the Pacific. This vast area represents one-quarter of the world's surface, in which are concentrated one billion

persons, or one-half of the total world population. Over these persons there are 12 governments, and it is another peculiar feature of this region that, in the case of 6 of these, their main seats of government are located outside Asia. These, then, are the features and outlines of the Far Eastern picture.

A regional organization should neither infringe upon the functions of national governments nor enroach upon the sphere of the global organization concerned. However, there are some questions which on the one hand transcend national borders, viz, an epidemic, but which on the other hand are not of direct concern to other continents. In such cases there is a particular rôle for the regional organization. Then, there are certain factors which are common to one region, such as racial, cultural, and geographical similarities, which particularly bind the various countries of that region together and thus require a common approach toward the solution of these problems.

In the Far East there are some special problems in the health field which are peculiar to the Asiatic countries. Vital statistics show us that here we have a situation where vast populations are struggling for existence and survival—with high birth, morbidity, and mortality rates. The Chinese and Indian birth rates of 36.6 and 44.4 births per 1,000 of population, respectively, are

* Presented before the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

more than double the British and United States birth rates of 16.9 and 18.9 respectively. The death rates of China (25.7 per 1,000 of population) and India (38.4) are in the neighborhood of 3 times the figures for Britain (11.8) and the United States (11.9). The infant mortality rate of China (157 deaths per 1,000 live births) compares most unfavorably with, say the United States rate of 39.9.

To meet these conditions the medical and health facilities are most inadequate, and are indeed subminimal. In western countries one thinks of 1 doctor for 1,500 of population, and 5 hospital beds per 1,000 of population as minimal standards. In China, for example, there is 1 doctor per 40,000 of population, and 1 hospital bed for 10,000 of population.

These are, of course, conditions which cannot be compared to European or American conditions and can best be handled in a special regionalized manner. I should digress at this point to emphasize that these are the conditions existing in the Asiatic countries of the Far East and *not* in the Australasian countries of the Far East. In fact, the health conditions in New Zealand and Australia are among the very best in the world. Bearing in mind the comparatively small populations in Australasia, one is tempted to add that this is "the exception that proves the rule" for the Far East.

Let us now consider the various fields in which a regional health organization in the Far East ought to function, and at the same time take stock of what has been done toward meeting such requirements.

1. The starting point should be provision of facilities for summoning a conference of the directors of national public health services in the Far East regularly and whenever necessary. UNRRA made provision at its first meeting for such conferences.

2. The most urgent field in which regional international action is required is that of epidemiological intelligence. It is important that there should be available vital statistics which are uniform and regular, and that there be a service of frequent and accurate reports on communicable diseases. The Singapore Epidemiological Bureau of the League of Nations—which also acted as the Far Eastern agency of the International Office of Public Health of Paris—performed this function up to the time it was driven out of Singapore by the Japanese in 1941.

3. In emergencies, whether war, disaster, or epidemics, appeals may be received from governments for help in supplies or personnel. Emergency field missions, then, will have to be promptly organized.

In the field of medical supplies, UNRRA is embarked at present on a program which provides supplies to five Far Eastern governments that have asked for such. It has been the experience of UNRRA that the standards and bases used for Europe are not applicable to the peculiar conditions of the Far East, and separate standards for Far Eastern requirements have had to be drawn up.

As regards medical personnel, it is within UNRRA'S plans to have personnel available both for field missions to any country which asks for such, and for "flying squads" in case of serious epidemics.

4. The training and proper distribution of personnel is one of the most important problems in the Far East. Mention has been made of the pitifully inadequate medical personnel in Asiatic countries. The value of international planning for postgraduate training, both through individual fellowships and through group study tours, has been well demonstrated in the past and on other continents. The Rockefeller Foundation has specialized in this type

of service. There should be organized for the Far East an extensive training program of inter-Asiatic fellowships, followed up by machinery for distributing the best knowledge to parts where they are most needed.

5. But beyond assistance in supplies and personnel, it must be evident that there are some countries which will need substantial financial assistance to develop adequate health programs, because they cannot sustain such programs with their own immediate resources. It has been estimated, for example, in the United States that the expenditure in maintaining an adequate public health program should be at least \$2 per year per person. In China, on the other hand, only some 0.027 yuan per year per person was spent for health purposes in 1936—i.e., about 0.8 cents (United States).

With a view to developing the health standards of every country to the level which international security demands, some system of international grants-in-aid should be established. We need for Asia some such system as that now being developed by the Inter-American Coöperative Health Service. Perhaps this may come within the sphere of activities of the International Bank for Reconstruction and Development, which was planned by the recent United Nations Monetary Conference at Bretton Woods.

These, then, are the five main fields in which there is need for regional health organization in the Far East. To complete the picture, it is necessary to mention those fields in which international agreement has been reached on a global scale, and in whose application a special regional approach will be necessary, though in a less direct manner.

1. The International Sanitary Conventions, signed by 66 governments, regulate the international control of epidemic diseases; the application of

these has been the responsibility of the International Office of Public Health in Paris.

2. The International Conventions and recommendations under the auspices of the International Labour Office, relating (a) to industrial hygiene, and (b) to social security and medical care, are goals toward which member governments are committed.

3. The League of Nations had a Commission on Biological Standardisation, which established some 27 biological standards, as well as Technical Commissions on Malaria, Venereal Diseases, Tuberculosis, etc., which co-ordinated and standardized research in these subjects.

4. The Secretariat for an International Pharmacopeia, which was established at Brussels, represented a first attempt toward this important objective of a common pharmacopeia for the whole world.

5. The new International Organisation for Food and Agriculture will handle the question of nutrition, among its other functions.

6. The several international conventions relating to dangerous drugs, and the work of the Drug Supervisory Body and the Permanent Central Opium Board, cover the international aspects of problems connected with dangerous drugs.

It will be seen not only that there is no single regional health organization for the Far East, but that there are several global organizations dealing with various aspects of world health problems. There are many who think that the present is the proper time for international review and action regarding the establishment of a single world health organization. Certainly the present international and regional efforts in the health field would benefit immeasurably from such centralization. In fact, one can go further and state that much of the present regional work

is definitely handicapped by the present multiplicity of international organizations. Taken together, these multiple organizations have achieved very real and material progress in international coöperation in the health field. Nor does anyone mean to imply that any of the existing international organizations, individually, is not fulfilling its functions, but it will be acknowledged by all that the situation needs "tidying up." These various organizations are like seeds, which have sprouted haphazardly, and so need cultivation and rearranging into an orderly pattern.

In this process of "tidying up," the initiative must lie—as in the many other fields of international endeavor—with the United States. So far there has been no public indication that any steps have yet been taken toward the launching of this initiative. May I suggest that it may be your privilege, as members of the American Public Health Association and thus as the public health leaders of America, to "start the ball rolling" by pointing out to your people and your government the need for one overall world health organization?

Child Welfare Information Service Organized

It was announced in January that the Child Welfare Information Service, Inc., had been organized with offices in Washington for the purpose of disseminating information on federal legislation affecting the health, education, employment and general welfare of children and adolescents. An office has been opened at 930 F Street, Northwest, Washington 4, D. C., and Bernard Locker, formerly the Assistant Executive Director of the Welfare Legislation Information Bureau, New York State Charities Aid Association, has been made Executive Director. The new organization will issue Bulletins analyzing all

bills introduced into Congress concerned with the protection of childhood as well as important changes in administrative policies in the federal bureaus. This is a non-profit organization which will take no position for or against any legislation. Mrs. Eugene Meyer of the *Washington Post* is President of the new organization. Among the directors are representatives from the field of public health as follows: Homer Folks, New York; C.-E. A. Winslow, Dr.P.H., New Haven; Hazel Corbin, R.N., New York; George S. Stevenson, M.D., New York, and Reginald M. Atwater, M.D., New York.

Today's Global Frontiers in Public Health

III. Potentialities of International Collaboration in the Field of Public Health *

MELVILLE D. MACKENZIE, M.D., D.P.H.

*Principal Regional Medical Officer, Ministry of Health, Whitehall, London,
England; Chairman, European Technical Committee, UNRRA*

WE must all of us, in our daily work, have been frequently struck with the fact that while the art of healing and the prevention of disease is essentially world-wide in its claims, the technical method of its application has been too often limited by politico-geographical boundaries. This was not always so. In the Middle Ages, when the guest rooms of the monasteries were open to wandering scholars and monk-Latin enabled the learned of all countries to communicate with each other, medicine, in common with other forms of knowledge, was international. Then, following the dissolution of the monasteries, with the resulting difficulty of travel and the disappearance of Latin as a lingua franca, a strong nationalism in the practice of medicine grew up in each country so that today the standards of strength of therapeutic agents (drugs, sera, vaccines) vary with the different countries, and the results of prevention or treatment cannot easily be compared.

Forms of notification of death and the character of the information given on death certificates of various nations are so different in character that the national death rates for such diseases

as cancer, tuberculosis, etc., are of little value for comparative research work. Even the study of clinical records of cases is complicated by the fact that in Europe alone there are three systems of recording temperatures (Reaumur, Fahrenheit, and Centigrade), and the different systems of weights and measures used in scientific work create still further complications. If this is true of clinical work and research, it can well be imagined how impossible is any real comparison between different countries of medical administrative methods and legislation.

Again, how rarely in the bibliography of any book, or indeed of any medical subject, do we find any references to work in more than one or two countries—often one only, and with this has sometimes developed an unfortunate tendency to regard as suspect results obtained by others than our own nationals! It is all too rarely that any medical administrator seriously studies how similar problems to his own have been dealt with in a number of countries. Nevertheless, here lies a mine of knowledge—hardly ever utilized for practical purposes. Yet, making allowance in some cases for differences in climate, environment, social customs, and standards of living, most of the problems of public health

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and the control of disease are fundamentally the same in each country, and everywhere first class men are seeking to solve them. We generally know only too little of the details of what has led to their successes or—and this is equally important—why they failed.

We must all of us have frequently seen others contemplating or indeed attempting to put into practice measures which have already been tried in a number of countries and proved impracticable. Indeed, careful consideration will show that there is hardly any piece of administrative medical work which would not be better done if those responsible could readily avail themselves of the experiences in other countries than their own.

Finally, I need not mention the obvious fields of international collaboration in the collection and dissemination of epidemiological knowledge and in the control of outbreaks of infectious disease affecting more than one country—essential work which can only be done effectively by collaboration between nations.

It is remarkable that it was not until the beginning of the present century that thinkers began to realize the value, both scientific and economic, that might be derived from a comparison of the methods utilized and results achieved in various countries, and still more from the adoption of similar national standards in research work, clinical recording, and administration, which would not only make results comparable but save vast sums of money by avoiding the repetition of experimental work, scientific, legislative, or administrative, which in one country had already proved unsuccessful.

The gate is surely opening for progress in international collaboration in medicine. Moreover, today we have for our guidance the past work of the Office Internationale d'Hygiene Pub-

lique and the Pan American Sanitary Bureau as far as the dissemination of epidemiological information is concerned and the administration of the international agreements in respect of quarantine measures voluntarily agreed to by some 54 nations. We can now benefit by the twenty years' experience of the Health Organisation of the League of Nations, which was the first body to explore and demonstrate practically the possibilities of international collaboration in medicine. The value of such collaboration has been indubitably demonstrated during the past twenty years and it is now fully agreed by both medical administrators and scientists throughout the world that some form of permanent international machinery should be created as soon as circumstances allow to provide for the solution of present and future health problems in all countries. Furthermore, as Americans and British, we are fortunate at this time in the international outlook of the heads of our respective national services, Surgeon General Parran and Sir Wilson Jameson. Surgeon General Parran's understanding of the potentialities of collaboration in medicine is too well known both in America and England to require any words on my part, and as far as Britain is concerned I would only say that you could not fail to be most deeply gratified if I had time to describe the very great influence American methods in public health have had and are having on public health practice in England, particularly in relationship to epidemic disease control and laboratory work—thanks to Sir Wilson Jameson's influence and his admiration of the public health work of your country.

May I mention one example of this. Hard pressed as the medical staff of the Ministry of Health is at the present time, Sir Wilson was so anxious to obtain uniformity as between Amer-

ica and England in the control of infectious disease, and to reap the benefit of reciprocal interchange of knowledge between our countries, that he asked Dr. Stock and me to come to New York specially in order to meet the members of your committee responsible for the "Control of Communicable Diseases," with a view to discussing with the committee the differences in epidemiological practice between the two countries. Prior to leaving England we obtained the views of the Scottish Board of Health, the Board of Education, the Society of Medical Officers of Health, the Association of School Medical Officers, and a large number of experts on the Control of Communicable Diseases of the A.P.H.A. Since we arrived we have already, through the medium of your publication, established a considerable degree of uniformity in the practice of epidemic control as between the United States of America, Britain, and the South American countries. I should add that in our inquiries in England we were struck not only by the great value attached to the brochure by medical administrators, but also by the wide extent to which it was already used as a guide in the control of communicable disease in our own country.

Finally, as a foundation stone, is the growing realization among medical men everywhere of the importance of pooling our neighbors' and our own knowledge and experience for the common benefit and for the advance of medicine. How widespread this realization is can be appreciated from the fact that immediately before the war, in addition to the official international bodies, there were no fewer than 56 independent medical international organizations, each dealing with one or other of the branches of clinical, research and preventive medicine.

The stage is now set as never before but we must ponder deeply on our

next move, and above all seek to learn the illuminating lessons taught by previous experience in international collaboration.

International medicine today stands much as public health work did 80 years ago in its relation to the old purely clinical medicine. In both cases the new ideas have had to face the criticism of conservative opponents. How preventive medicine established its position during the latter half of the last century is familiar to you all. We must again build truly and well to insure that international collaboration in medicine becomes similarly established as an aid to every national health service and to every physician and research worker.

It is certain, however, that the first step is to do all in our power to insure the success of our newest creation in the field of international medical collaboration—UNRRA. On the success of the medical work of UNRRA will certainly depend the possibility of making a success of any new permanent international medical organization we may essay to build in the future.

What are some of the lessons of the past? First, that the almost limitless scope of the international medical field in itself creates a danger—that of attempting to cover too much ground superficially. Moreover, pressure to obtain results rapidly in a desire to justify the existence of the organization may be a contributing factor to shallow work. Therefore, in considering the creation of any permanent international health organization, the greatest emphasis must be laid on the importance of reaching and maintaining the very highest standards. It is of fundamental importance that the heads of the national health services as well as national technical scientific bodies should recognize any work done as being reliable.

Second, that the temptation to develop work along lines that are politi-

cally and sociologically too far in advance of what is possible at the present time must be resisted. Unless the developments proposed are parallel with current political thought, or at any rate only slightly in advance of it, success cannot follow.

Third, that in all international medical work it should constantly be borne in mind that for success political action must be a tool in the hands of medicine and not the reverse as has too often been the case. Unless this is accepted, the scientific prestige of the organization falls proportionately. For this reason, we must not overlook the problems attendant on harnessing medical work too closely to a world-wide political international body whose fate it must necessarily share, apart from the fact that technical work is constantly hampered by lack of cases, utilize social medicine machinery for purely political action and dissemination.

Fourth, the exchange of epidemiological information and is concerned with quarantine procedure. only the provision of tours covering the number of countries for individual officers to study the clinical, research, is administrative aspects of special subjects.

Fifth, the establishment of an international world library as a part of a center for health education. At present there is no place in the world where a health officer can see all the different laws and regulations of the various national and local health services or can read the public health reports of all countries and places foreign to his own and thus find out which administrative steps have succeeded and which have failed and why. Yet such an invaluable and unique collection of documentation could readily be established by an international organization. Indeed, it can be done in no other way.

tional administration. This has the advantage that we do not hastily put aside organizations of established value and of wide experience. In view of the political difficulties which have to be overcome before an international technical organization becomes actually operative and the extreme slowness with which agreement between various schools of thought is realized, very careful thought is necessary before it is decided to cast aside the old and build anew. We must not forget, moreover, that most governments have existing obligations to each other under a number of international Conventions and Covenants and the removal of these to any disposal of other nations and at the same time will realize the potentialities of coöperation with other countries in the solution of scientific, clinical, and administrative medical problems. I am convinced that this will be equally true of all those responsible for medical or health practice throughout the world.

We must therefore prepare for the opportunity which lies before us and, when the time comes, accept, as trustees of the public health of the future, the responsibilities of creating and maintaining machinery for international collaboration in all branches of medicine.

In conclusion, in the difficulties we shall meet, we must constantly seek to learn from each other, keep our minds recipient to new ideas, and remember the truth underlying the words of Kipling:

All good people agree,
And all good people say
All nice people, like Us, are We
And everyone else is They.
But if you cross over the sea
Instead of over the way,
You may end by (think of it!) looking on We
As only a form of They.

war times, and to the fact that the pattern of liberation itself has been such that, in some of the areas, scorching by the enemy has been less systematic and much more spotty than it otherwise might have been.

On the other hand, even with a somewhat more optimistic view, one cannot escape the conviction that, for certain areas and regions, the public health problems to be met by the peoples of war-torn Europe and Asia during the days immediately ahead will in most respects be altogether unprecedented.

As reports from many of these areas become available, fragmentary as they may be, one cannot help but be impressed with the dominant rôle which attaches to the problem of hunger. It is interwoven in one way or another with practically every problem in public health. It looms large as an independent entity among the causes of death; it exaggerates tenfold the health problems of maternity and infancy; it contributes in considerable degree to the excess morbidity from malaria; it expresses itself in undue fatality rates for a whole host of diseases, notably typhus fever; and in its own insidious way, it is wiping out the gains of a generation in the world-wide movement toward the prevention and control of tuberculosis. From the beginning of the war, food has been the sharp weapon of the enemy, it being in food distribution that his practices of racial and political discriminations have been most notorious.

It is perhaps to some extent a matter of good luck that we have escaped up to now the classical wartime epidemics. Otherwise, one would be tempted to say that they could be foretold almost with mathematical precision. The abrupt displacement of millions of people into foreign environments, the breakdown of sanitation and other health protection services, the con-

fiscation by the enemy of hospitals, drugs, and biological supplies, and the discriminatory policies covering the use by the native population of what remains, the overcrowding, the lack of food, clothing, shelter, fuel and soap; all these point to the serious potentialities of pestilence, especially when the return of displaced persons to their homes reaches mass proportions.

The forced displacement of people is one of the great social tragedies of this war. There is no way of knowing at this stage what the full consequences will be, particularly in respect to the children and youth of the families concerned. It is estimated that among Europeans alone displaced persons number 10 to 20 millions. These include prisoners of war, civilian internees, forced laborers, political prisoners, racial minorities, orphans, former residents of "blitzed" areas, and large groups of refugees who, escaping from their native countries to avoid the cruelties of the Gestapo, have become dispersed throughout practically the entire world. The provision of the necessary medical facilities and public health safeguards whereby these people can be returned and restored to their homes and families within reasonable limits of sanitary safety will constitute one of the major public health undertakings of the months immediately ahead.

Here, one may anticipate the entire gamut of public health problems, with some emphasis on orphaned children, maternity and infancy, the venereal diseases, and general illness, but with the whole picture dominated by epidemic disease.

Already we have had warnings by typhus fever in Italy and the Balkans; cases of malignant malaria in the Mediterranean countries numbering in the hundreds of thousands; the enteric diseases, particularly the dysenteries, on the increase in practically every occupied country; and over every area

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about which we have information the shadow of tuberculosis becoming increasingly heavy.

Infant mortality, that most sensitive index of the health status of a people, points further to the magnitude of the health job that faces large segments of the post-war world. Under the general conditions known to have prevailed in the occupied areas, it comes as no surprise that infant death rates have increased from 20 to more than 60 per cent above their pre-war levels, that premature births and miscarriages have more than doubled in frequency, that hunger edema has advanced to among the leading causes of death among children, and that indeed credence can be given to the report that in certain areas a second pregnancy during the war was considered tantamount to suicide.

In a country such as the United States blessed with almost unlimited natural resources, together with extraordinary industrial genius, the physical goods and tools needed for the maintenance of health are taken more or less as a matter of course. However, no country is entirely self-sufficient in all such essential goods. Some of the occupied countries prior to the war were more or less self-sufficient; others were almost completely dependent upon imports. The war, however, has placed all of them in one of two categories, either deficient or destitute. The sharing of present world stocks of drugs, biologics, chemicals and equipment for sanitation, hospital supplies and equipment, and the prompt rehabilitation of industry and transport to the point where world requirements can be met adequately constitute still another important element in the total job of world health.

These are some of the essential problems which, as we see them, highlight the task immediately ahead. From a technical point of view, it would be relatively easy to outline the

specific measures to be applied in each case, yet the measures themselves when translated into all the elements which comprise a program of action take one immediately to the fundamental problems of organization and personnel.

In this regard, it may well be that we will have derived certain compensations from this war's experience. True the war has magnified certain of the world's health problems many fold. Yet at the same time it has demonstrated beyond a shadow of doubt man's capacity to mobilize upon a global basis the tools and resources necessary to reach a common objective; while the wreckage of the war, in terms of typhus, malaria, tuberculosis, the venereal diseases, and the psychoneuroses, is yet to be measured, the means for getting at the job have been greatly perfected as a result of war inspired researches and military experience; and, finally, though the war for a large portion of the peoples of the world all but blotted out the possibilities of intellectual and cultural life, and shut off the free flow of ideas and ideals across political boundary lines, that experience in itself has refreshed the conception of knowledge as an international responsibility and has led to a much wider appreciation of the fundamental importance of international collaboration in matters pertaining to the science of health. So that with the end of war in sight, we have had the lessons of an experience, of a framework of organization, both technical and political, and of new technical achievements based on new scientific discoveries, upon which to move forward into the global frontiers of health, all within the environment of a more enlightened and more favorable world public opinion.

Two developments have taken place already which may well be considered the beginning of a new advance upon the global frontiers of health. These are the Interim Commission on Food

and Agriculture (authorized at the International Conference held at Hot Springs, Va.), and the United Nations Relief and Rehabilitation Administration. Though the former has long range and the latter has short term objectives, in both of them health is afforded a place of great importance.

UNRRA has been given the task of mobilizing the available resources of the forty-four Allied Nations for the purposes of bringing to the victims of war, immediately upon their liberation, aid and relief from their sufferings, food, clothing, and shelter, aid in the prevention of pestilence and in the recovery of their health, assistance for the return of prisoners and exiles to their homes, and aid in the resumption of agricultural and industrial production and in the restoration of essential services.

Within the health organization of UNRRA there are no delusions as to the enormity of the task imposed upon it. Though the past year has been spent largely in planning for a job that could be defined neither in scope nor time, yet substantial progress has been made. Stocks of medical and sanitation supplies have been assembled, both in this country and in the United Kingdom, which will be made available for distribution in the liberated areas as rapidly as conditions permit. The essential nucleus of the administrative staff, both central and regional, has been engaged. Substantial numbers of personnel, including physicians, nurses, engineers, entomologists, bacteriologists, medical requirements specialists and other technicians, have been deployed in various parts of the world in anticipation of early action in the field.

It is impossible, at this stage, to define a typical UNRRA health team for a country operation. Differences of need will be too great. What UNRRA must have, however, to do its job adequately, is a much larger health force

than is now at its disposal. The most pressing need at the moment is for nursing personnel, including those in public health, hospital nursing, and nursing education. In the medical group, the greatest need is for trained administrators, preferably in the field of public health; persons of professional caliber who can advise and assist the health officials of the national governments in the task of reorganizing, strengthening, and expanding their health and medical services to meet these unprecedented problems. In addition, there is great need for specialist personnel in practically all fields, epidemiology, tuberculosis, medical nutrition, malariology, hospital administration, maternal and child health, sanitary engineering, bacteriology, and medical supply requirements.

UNRRA is unique among international organizations. All international bodies created prior to UNRRA were essentially contemplative, set up primarily to function in an environment of peace, and relying for the most part upon each sovereign member state to administer and execute the plans arising out of this joint contemplation. UNRRA, on the other hand, is essentially an organ for administration and executive action, with a short span for such action it is true, but with even a more limited period for contemplation and planning.

Being unique in this respect, UNRRA has had few precedents to guide it through the difficult stages of effecting its administrative organization. It becomes all the more necessary then that its personnel be of the very highest caliber in order to insure the fulfillment of what we hope to be UNRRA's destiny, namely, to demonstrate in a practical way the competence of a world society of nations to give strength and meaning to the doctrine of mutual aid. The experiences gained in UNRRA will redound greatly to the

benefit of the permanent world machinery which must follow in the wake of UNRRA to carry further forward the advances into the global frontiers of health.

UNRRA is an emergency organization. Its life span cannot be more than a very few years. To mobilize fully the resources of the world into a global approach to public health requires, in my judgment, the creation in due time of a permanent international health organization.

This organization too, I believe, should be unique. It is beyond my competence to suggest precisely what the administrative pattern should be, or where it should be placed within the overall international political framework; suffice it to say that every possible safeguard must be made to insure for its stability, continuity of policy, and adequate financial support.

This permanent world health organization should, in my view, carry out at least the following functions:

1. It must serve as a world intelligence center on matters pertaining to public health and especially as regards the movement and behavior of communicable diseases.

2. It must be responsible for the further development of international standards relating to biologicals and other medicinal products of international importance in the prevention and control of disease.

3. It must give meaning to the principle of mutual aid, and strive toward the goal of equalization of opportunity for world health by furnishing technical assistance and consultation to any member state faced with health problems that go beyond the administrative competence of the individual national government.

4. It must take advantage of its peculiar position to push back the frontiers of knowledge by organizing and supporting appropriate researches (both laboratory and field) into the health problems of international concern.

5. It must serve as only it can, as the most effective instrument for international health education, through such media as an international health library, publications, reports and what is most important, the international exchange of personnel.

6. With the present trend toward a high degree of international collaboration in many other fields, such as food and agriculture, finance, transport and labor, all of which have elements related to health, it must be prepared to provide essential technical consultation to these other international bodies and furnish authoritative direction and intelligent collaboration with them on all matters having to do with world health.

I would venture to suggest that the time may come ultimately when there might be developed under the auspices of this world organization an international school of public health devoted to the training of personnel for service in international health work.

As regards both its functions and its relationships with member governments, this international health organization, as I view it, would be patterned to a surprising degree after the U. S. Public Health Service in its functions and its relationships with the several states of the United States. And I would like to hope and believe that given a similar pattern of organization and the necessary leadership, it could, in future years, point to a record of achievement in the international sphere of equal or greater distinction than that of our own Public Health Service in its national sphere.

Aside from winning the war, the major preoccupation of the peoples throughout the world today is the securing of the peace. I know of no responsible person who would disagree with the view that world security must be based upon world coöperation. I believe experience has shown that international collaboration cannot be selective. It is impossible to choose specific fields for coöperation and disregard others. But public health, blessed with a philosophy and technic that are peculiarly applicable for international collaboration can, and I think will, spearhead the movement toward a world society of nations.

orient and to lead the national and local organizations to improve their standards of public health, beginning with one problem like that of yellow fever just mentioned and gradually extending to other fields.

This is what, with an international understanding and superior ideals, we are doing in Brazil. I am proud to say that the health officers of my country, since Ribas and Osvaldo Cruz, have always considered health security in a broad international sense, and we praise very highly the privilege of working together with our neighbors in the health security of this hemisphere.

The proper administration of agreements and conventions is not a routine procedure but is a constant opportunity to find out the major needs of each region and proper ways to deal with the local problems on behalf of international interests. The administrators of the conventions are responsible to a large extent for the world's safety in traveling, and organized trade and commerce. The mere statement that such and such a territory is unsafe may be an easy way to discharge responsibilities, but it is not what the world would ask for or encourage to be done. A permanent active work of continuous improvement of the sanitary conditions is the main task to be performed.

In a global public health work where no geographical or human boundaries are to be considered as barriers, is that what is to be expected? A progressive enlightenment of the populations in civilized as well as in other territories should be more and more the task of a combined movement oriented by an international health organization of which the sanitary conventions are the very backbone at the present time. A proper international health organization shall come to complete such action.

For the moment, let us consider a part of what UNRRA's task will be in the near future. The public health

work assigned to UNRRA is to be conformed to the general rules established, both for planning and administration. Primary emphasis is laid upon (a) aiding governments in accordance with plans approved by the governments concerned, and (b) strengthening indigenous organizations. In health matters this means besides direct action in fighting epidemics, help in the setting up of local or national health departments. It is a unique opportunity to bring national health organization in conformance with the general international interests. Different as they may and possibly should be, the various national health organizations should at least be in conformity with minimum satisfactory standards in order to serve in the international field of coöperation.

As outlined in different but convergent ways by our distinguished speakers for today, let us hope the future international health organization, taking advantage of the lessons of the Health Section of the League of Nations and the International Labour Office, go still further in the study and promotion of better living conditions on the ground of a minimum acceptable health standard. It is no more admissible in the world to come for human beings to live at such a low level even in civilized countries—a level sometimes inadmissible for certain classes of livestock. Food, clothing, and housing, together with safety and insurance policies, should be given serious consideration.

A single organization like the one Dr. Mackenzie proposed, fully utilizing the existing bodies, suitably modified, is what would appeal most to everybody.

Using some of his expressions, one should hope for the survival of the "Lingua franca" of mutual understanding of the Middle Ages, and this Lingua franca certainly contains international medicine as one of its most important goals.

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The suggestion of the establishment of such an organization is in the minds of all of us. For practical action, it is most opportune that the A.P.H.A., whose members are the public health leaders in America, should take the initiative in studying and recommending it. Such an organization would be

a stimulus to any regional work, so far handicapped by lack of an international support.

Leading the way, the A.P.H.A. would once more, rendering tribute to the world to come of the importance of our aims, deserve the adoption of a motto like "Non ducor duco."

KARL EVANG, M.D.

Surgeon General, Norwegian Public Health Service; Washington, D. C.

AS the Allied armies are marching toward a United Nations victory, some hesitation and doubt seem to be creeping into many minds as to the future. Both in this country and in Great Britain—especially in the last year—I have met an increasing number of people who are asking what the future will be. The reason for this is very simple: The war has not solved the problems that existed before the war. It has, on the other hand, created new ones.

This is true also as far as public health problems are concerned. We all know the world public health problems: tuberculosis, venereal diseases, and the epidemics, sanitation, nutrition, industrial hygiene, school hygiene, mental hygiene, to mention only a few. All these problems will exist for a long time to come. They have not been solved by the war. Several of them will have been exaggerated.

Among public health problems created or exaggerated during the war are under-nutrition and starvation, which for several years were predominant in many of the occupied allied countries both in Europe and in the East. Scars have been left on the occupied countries' population through terror and suffering inflicted by the Axis occupation troops and the Gestapo. I would like to elaborate on this last extremely important point. It is right to say that

we must face the fact that people in occupied countries have sustained emotional scars, and have developed asocial and antisocial habits which have been encouraged and, to some extent even legalized under the enemy regime.

Deeply rooted principles, written and unwritten laws have been turned upside-down and melted together into a principle of high order in the fight against the enemy. Rules and regulations issued by the self-imposed authorities exist only to be disobeyed. Sabotage is regarded not only as a right, but a duty. People forced to work directly or indirectly for the enemy have discarded old ideas of speed and efficiency: the rule is to work slowly and in the most unproductive manner. All surrounding human beings belong to one of two worlds: deadly enemy or devoted friend. Normally not even small children can escape the impact of the colossal events at home or abroad. In addition, there have been the countless crises, big and small, years of disappointment, and slowly undermining malnutrition. We have no past experience, actually, by which to judge how all these things together will influence mental and physical health of people in the future. Will it be possible to switch from this "underground mind" to peacetime social life?

A separate health problem created by the war in many of the occupied

countries lies in the thousands of our best men from all walks of life who are gradually rotting in German prisons and concentration camps. Some are "political prisoners," others simply hostages. Most of them get a treatment much worse than that of the prisoners of war. We do not know how many of these men will be alive when the war is over, and how many will be marked for life. The rehabilitation of invalids in the widest sense of this word, will create a tremendous problem in all fighting countries after the war.

Of the occupied countries it can generally be said that they have suffered a setback of several decades in their national health status and it will undoubtedly take years of work to regain what has been lost. I mention as an example diphtheria in Norway. The last year before the war, 1939, we had altogether in Norway some 70 cases of diphtheria with no deaths. In 1943 the figure was 22,000 with a high mortality.

On the other hand, we can already now see several positive features in the picture: In the United States and Great Britain extensive plans for medical organization and medical security are under discussion. The same holds true for Canada and several other free countries, and from inside occupied countries come requests for such plans. We have also during the war gained new experience, showing what can be accomplished if a proper organization is created and proper authority given to it. As an example I mention the Typhus Commission, under Generals Bayne-Jones and Fox, which has done splendid work in several theaters of war. I also mention the results with new drugs like penicillin, the sulfonamides, and the possibilities they represent.

We also have the extremely encouraging results from public health work and campaigns on a nation-wide

scale in many countries during the pre-war period. As an example from this country I mention the U. S. Public Health Service's campaign against venereal diseases, led by Surgeon General Parran. It is in my opinion an example of what can be achieved through a courageous, open fight against disease, regardless of what other aspects may be involved.

At last I mention the pre-war international health work, not only that carried out by the Health Section of the League of Nations, but also the work in different fields of several other international hygienic and medical organizations. The multiplicity of these organizations was perhaps necessary before the war. It is my firm opinion that in the post-war period we should endeavor to unify and centralize. Of course, regional work has to be done, and can to a certain extent be done only by regional organizations. There is, however, the danger that different standards may be developed and adopted in different parts of the world, and regional work in different sections of the world has, therefore, to be co-ordinated by a unit of higher order.

International nutrition work ought not to be dominated by agriculturalists and economists alone. Nutrition is fundamentally a question of health, and health aspects of nutritional problems must be dealt with through the coming international health organization.

One of the problems which must be answered is that of post-war relations between UNRRA and international public health. Many people put the question this way: "Should UNRRA develop into the coming international health organization, or should this be created independently of UNRRA and its work?"

In my opinion this question is quite academic. UNRRA has been limited to a certain war and post-war period, and UNRRA's work is also limited as

to scope—UNRRA is first and foremost a relief organization. We have, in my opinion, to plan the coming international organization in such a way that there will be no interval, no lapse, between the termination of UNRRA's work and the beginning of the work of the other. To meet this situation, we have to plan now. This will not mean that the work of UNRRA's Health Section will be interfered with. As you well know, the small occupied countries have on the whole been strongly in favor of expanding UNRRA and extending its work. As I see it, the coming international health organization should not develop from UNRRA. Some of the personnel who have worked in UNRRA will naturally go over to the new agency which would benefit directly and indirectly from the experience gained by UNRRA.

As a last point I would like to emphasize what Dr. Mackenzie of Great Britain said, that public health problems fundamentally are the same all over the world. At the same time we must not forget that a public health organization is a *superstructure*. It is quite true, of course, that malaria is malaria, that tuberculosis is tuberculosis wherever you meet it in the world. However, the problem created by malaria, by tuberculosis, or by infant mortality will be quite different in different parts of the world, changing with the social and economic conditions of the countries. Public health cannot stay aloof, far from the fighting world and its people. Public health administrators must be willing to work from the very bottom where the problems are, even if that means resistance and difficulties of economic, religious, political, or other nature.

Public health is not primarily a science in the strictest sense of that word. Public health includes science, built upon science. The function of public health is to apply the results

achieved by science to the population. The task is to try to bridge the gulf between what is possible to do now—in preventive and curative medicine—and what is actually being done. We all know what an enormous gulf that is.

Several of the speakers have given you a picture of the international medical work which has been done up to now. Let us not forget it—let us build upon it. Without doubt, the international health work was on the whole among the most successful international undertakings. I mention the Epidemiological Intelligence Service, the Nutrition work of the Health Section of the League of Nations, the international standardization, and the field work. The time has now come to continue this work and to extend it. This is the time for an international crusade against tuberculosis and venereal diseases. Is not this also the time to create an international institute and school for public health education?

In closing, I support as strongly as I can the conception of my distinguished Chinese colleague, Dr. Szeming Sze: "You who belong to the United States Public Health Service have been working under more favorable conditions than in any other country, and you have performed a magnificent task. Now you have the chance of participating in creating the basis for the coming international health work."

The first international health conference will, of course, have to be a United Nations conference. We cannot at the present moment admit enemy countries. But the conference, in my opinion, ought to be called as quickly as possible, preferably before the war is over. There are many problems which we can agree upon now, but which would be more difficult to solve when we have again settled, each in his own country, and are engaged in peacetime tasks.

Public Health Aspects of Psychosomatic Problems^{*}

FLANDERS DUNBAR, M.D.

*Departments of Medicine and Psychiatry, Columbia University Medical Center,
New York, N. Y.*

THE public health nurse, by the nature of her field of practice, is brought into contact with a wide range of problems in the lives of sick people. It has become increasingly clear that social and economic factors complicate many cases of illness, and by recognition of these factors the public health nurse is giving evidence of the change which has come about in the concept of what constitutes a public health program.

Traditionally, public health was conceived as primarily concerned with the control of communicable diseases, proper supervision of water and milk supplies, housing, and general living conditions. Thus, public health was thought of as a community problem, and the idea was responsible for progress in the general welfare.

Now, however, through developments in medicine itself, and through changes in disease syndromes most frequently encountered in civilian life and in the Armed Forces, it has become more than ever apparent that, while former gains must be conserved and extended, public health is basically the problem of the health of every individual in the community. Recent discoveries in medicine indicate the necessity of treating individuals as well as disease entities. The effectiveness of

the public health nurse will be greatly increased if she knows how to use this approach. Most of you are well aware of this fact, but probably you have wished that your training had been focused more on its practical applications.

The majority of illnesses with which it is our responsibility to deal cannot be treated, diagnosed, or even prevented by the application of the traditional public health techniques which have been so successful in the epidemic diseases. The illnesses with which traditional techniques have been more successful already have disappeared from the list of the major causes of labor wastage and mortality. This list as it appears today is made up for the most part of illnesses of which the cause is unknown or inadequately known, and for the treatment of which we lack not only specific drugs, but also hospital facilities and an adequate management program. They are expensive illnesses. They are illnesses in which the personality of the sufferer is of major importance. In the years between World War I and World War II, the U. S. Public Health Service, the Milbank Fund, and many other groups interested in public health have called attention to these changes and to the fact that the public health nurse is more than ever essential in any health program.

Cardiovascular and gastrointestinal

^{*} Presented before the Public Health Nursing Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

diseases, arthritis, and other illnesses, all characterized by a tendency to become chronic, are now responsible for the greatest labor wastage and the greatest mortality each year. Ordinarily it is thought that chronic disease affects mainly the oldest age group. But a recent National Health Survey shows that nearly one-half of the sufferers from chronic disease today are under 45 years of age, and 70 per cent are under 55. Only 15 per cent of chronic disease involves persons over 65 years of age. Thus, chronic disease is presenting medical science with problems of both qualitative and quantitative difficulty.

It is now being recognized that, particularly in this type of disease, the psychosomatic approach is an important aid in developing greater precision in diagnosis and treatment. An individual is neither a mind nor a body, but an organism which is a unit, and which functions as a unit. In health or in illness it is the whole person that is involved. Thus, mental and physical health are indivisible. There is no illness without important emotional and psychic factors, and emotions, as research has shown, are always accompanied by physiological changes. The individual who is angry or afraid responds to these emotions with physical symptoms such as a faster heart beat, increased adrenalin in the blood, extreme tension of the muscles, etc.

If such changes persist and the individual or the social situation precludes any adequate expression of them—or adequate solution of the problems which give rise to them—these perfectly normal accompaniments of emotion affect the person involved in such a way as to favor a dysfunction of the body which resembles, and often becomes, a major illness. In other words, from the psychosomatic point of view, functional diseases are no longer thought of as opposed to organic dis-

eases. Functional disorders often are the early stages of the organic disease. The distinction is thus not one of *kind*, but of *time*. Appropriate therapy which gives attention to the interrelated physical and emotional factors in an illness may interrupt the course of a physical-psychological-social syndrome which would later have become a major illness. To illustrate the way in which physiological and emotional factors are intertwined, and to suggest what earlier attention to treating such factors might accomplish, I shall describe a case of cardiac decompensation which narrowly escaped a possible fatal outcome.

A married woman, aged 28, was admitted to the hospital three times in quick succession with cardiac decompensation on the basis of unknown etiology. At first it was thought that the problem was rheumatic, then gonorrhea was excluded, and then it was decided that she might be suffering from a rare condition known as lupus erythematosus disseminatus. The patient's response to treatment was poor and it looked as if she would have to be kept constantly in bed because of the unfavorable prognosis. During all three hospital admissions she was on the danger list, and part of the time in an oxygen tent.

If there were time to present this long case in detail, you would be impressed by the enormous amount of hospital time and medical attention devoted to this patient and the thoroughness of the medical work. Nevertheless, she was discharged for the third time with cardiac decompensation, etiology unknown. There was a complete absence from the medical personal history sections of the relevant information which was brought to light when, after the third discharge from the hospital, she sought psychiatric advice.

Many events in this patient's life

proved to have a specific relationship to her illness. During childhood she had been exposed to constant conflicts between her parents; her marriage was unhappy and characterized by experiences that produced in her anger and disgust; she entered into a love affair with a married man who was a friend of the family; her relations were poor with both her mother and her mother-in-law, each of whom tried to dominate her life. A telescopic picture will show more clearly how some of these life situations were related to her later illness.

After discovering that she was pregnant, she decided one morning to rearrange her bedroom, and in moving her husband's bed, she strained her back. The pain in her back persisted for weeks, and her physician recommended a lumbosacral fusion and a therapeutic abortion. He told her that she would have to spend most of a year in the hospital. In relating this to the psychiatrist, she said: "Can it be that I welcomed the idea? I don't believe that I really needed the operation, but I couldn't get divorced and this seemed a heaven-sent opportunity to get away from my husband."

After this, the love affair with the mutual friend began, but it was broken off when the patient spent two months in the country repenting. She made an appointment to see him, however, on her return to town. On the night before the new appointment she got herself knocked down at a gay party and thought she had broken a rib. She said this gave her a great sense of relief because now it would be unnecessary to sleep either with her husband or her lover for quite a while. Thus her guilt over a severe conflict was temporarily allayed. But the rib was not broken, although the symptoms continued, and the next day she was sent to the hospital for the first time with cardiac decompensation and pulmonary edema.

She said: "I was reading in a book that: 'the Lord strikes knives into the hearts of his children that err.' I guess that's what happened to me."

The patient was in bed for three months, then got up for a party which was attended by her lover and his wife. The old conflict returned and six days later she was admitted to the hospital for the second time.

After the third attack, which came on three months later, she was moved from the hospital by ambulance to her summer home. She remained in bed and the only visitors allowed were her mother and her mother-in-law, the two people of whom she was most afraid. During the fifth week she was allowed to get up for dinner for the first time, and her husband invited his business associate and his wife to join them. This business associate was her lover. The following day the patient woke up gasping for breath and with a return of her old symptoms. She insisted on seeing her psychiatrist, although her husband and the doctor thought that this was unnecessary because all arrangements had been made for her return to the hospital.

When the psychiatrist arrived, the husband was pacing the floor and the trained nurse asked in agitation whether the patient would live through the night. They said the psychiatrist's visit was useless as the patient could no longer speak.

When the psychiatrist walked into the room the patient opened her eyes, which were full of terror, and said in a hoarse whisper between gasps for breath:

"Well, you were almost too late. I am going to die but I wanted so much to wait till you came." She was propped up in bed and her whole body was rigid. She said in a few minutes: "I wanted to confess. I'm no good. I guess I'm done for." Then, after a pause: "I can't help being at-

tracted to A..... I hate my husband. I'm being punished."

Psychiatrist: "I think you're very angry. Look at your fists." (Both fists were tightly clenched.)

Patient: "That's the pain, . . . the knife in my heart." Then after a pause. "You think I want to sock someone. Nice girls don't do that." And for the first time her face relaxed in a wry smile and, in spite of herself, she took a deeper breath.

Psychiatrist: "What about a long slow breath?" (The patient's pulse rate had gone down from 150 to 90 during the preceding moments.)

Patient: "I couldn't; the pain would be terrible."

Psychiatrist: "You just did, and it didn't hurt, did it?" The patient tried, looked amazed, and began to speak in her normal voice.

Patient: "Do you really think they can do anything for me? They haven't yet."

Psychiatrist: "Perhaps not, but you can."

Patient: (in astonishment) "What?"

Psychiatrist: "You might start by unclenching your fists, at least until the right person comes along to sock, and then breathe naturally."

Patient: (after a pause) "My toes are all clenched too. I guess I was mad. Why won't the doctors let me see my friends? People I like, instead of keeping me in prison, tied to my bed to be tortured by my husband and mother-in-law and mother?"

Psychiatrist: "We'll see about changing that tomorrow. Now, what about taking away those pillows and having a good sleep?"

Patient: (doubtfully) "I feel better. You don't think I'm no good the way the others do?"

Psychiatrist: "Quite the contrary. We'll talk about that in the morning."

Patient: "Then I'm not going to die tonight?"

Psychiatrist: "Why should you? Your pulse is normal; you can breathe, and there isn't any more pain, is there?"

The patient sighed deeply and went to sleep almost immediately.

The next morning the patient was so much better that the physician in charge decided that it was unnecessary to take her to the hospital. Shortly thereafter arrangements were made for her to return to her town apartment where she could have more adequate psychiatric treatment. In about a month she was able to be up around her household and to take care of her child. Four months later she was managing a job, in addition. There have been no further attacks in a period of six years, although no limitation on activity of any kind has been made.

Perhaps the best comment which can be made on this case, from the psychosomatic point of view, was made by the patient herself. She said, about her illness: "Until you made me face what was really bothering me, and showed me that I could do something about it, life was impossible except when I was sick. It may sound funny to you, but it used to be a relief to have a real pain to fight, instead of my husband and all the people I hated and felt despised me. What I used to call the knife in my heart hurt so much that it blotted out everything else, everything that bothered me. It was like being drunk, but even more potent."

Today psychiatrists, internists, and surgeons are being brought closer together in the endeavor to work out more precise techniques for dealing with the problems of illness. One conclusion that has been reached is that the social worker and the public health nurse must play a major rôle in handling these problems. During World War I welfare records were not used by the draft

boards and it is only recently, after a minor battle, that their importance has been recognized and accepted as an aid in screening.

In screening the attempt is not merely to sift out and discard the unfit, nor is it even to separate the finer from the coarser sand in order to use each more constructively. The word "screening" designates an attempt to obtain an individual picture of each person, whether his place is to be in the Armed Forces or in the industrial army. Newer techniques in evaluating personality, through obtaining a personality profile, make possible more accurate distinctions in judging the functioning capacity of the personality, including both physiological and emotional components. Of course there are many lags in the application of the new knowledge and techniques. As has been said: "The acquisition of new knowledge is less difficult than learning to apply what is known."

As public health nurses you are interested in learning to apply this new knowledge. Illnesses that swell the mortality figures are not the only, or perhaps the main, concern of the public health nurse. As she makes her daily rounds she is troubled by the number of complaints she receives, of headaches, backaches, stomachaches, or that general tired feeling. If regarded solely from the somatic side, these conditions seldom seem to have adequate cause. In the words of the medical records, the etiology is unknown. In such cases the psychic factors are of importance. Also, the public health nurse may hear from mothers: "The children make me so nervous." The nurse who can listen in a friendly manner to these mothers, and resist the temptation to lecture or to moralize, may perform a therapeutic service in reassuring and stabilizing an inadequate woman. When a relationship such as this is established, the way is paved

for the mother's acceptance of medical advice. Thus, the public health nurse may find that she is able to reduce the number of refractory patients.

The personality profile may be used by public health nurses as guides in observing, listening, and ultimately obtaining information which, although it may be of critical importance, the busy physician may not be able to obtain. The public health nurse should try to find time to listen to what patients say about their feelings and their illnesses. Information gained by such means supplies valuable clues to the most effective management of a given individual.

It is of interest to the public health nurse to note that medicine is changing in relation to some of its long-accepted formulae. In the August 19, 1944, issue of the *Journal of the American Medical Association* there was published a series of articles on the abuse of rest. Some of these articles refer to cardiovascular disease, obstetrics, surgery and orthopedic surgery, and to the unfortunate results of complete bed rest. They are based on observations by internists and surgeons who, in treating specific syndromes, have become impressed by the importance of emotional factors in hastening or retarding recovery. One doctor calls attention to the years of psychic invalidism brought about as a result of the physician's insistence on excessive caution. Another says: "Prompt restoration of surgical patients to normal life is an essential factor in convalescent supervision. Early post-operative activity and walking provide manifest modifications in customary convalescent care by which the process of reconditioning may be largely eliminated and early rehabilitation achieved."

We are thinking in terms of rehabilitation today. The medical knowledge which exists must be more effectively used to maintain the highest level of individual and community

health. The service men who are returning, some of them permanently crippled, will have many health problems. It may be well also to recognize that all men who go back into private life after war experiences, or training for such experiences, will have health problems in the sense in which health has been considered in this paper; that

is, the impact of their readjustment will be evidenced in their health and in that of their families.

The public health nurse of today can best serve both her patients and the community by widening her range of observation to increase understanding, not only of illness, but also of ill people.

Next Steps in Maternal and Child Health

A nation-wide survey of personnel and facilities needed to assure comprehensive health services for all mothers and children after the war, which will be undertaken by the American Academy of Pediatrics with the help of the Children's Bureau, U. S. Department of Labor, and the Public Health Service, Federal Security Agency, received the endorsement of 70 leading physicians and other professional workers meeting in Washington as an advisory committee to the Children's Bureau.

This action of its advisory committee and others bearing on the administration of the Children's Bureau maternal and child health program were made known by Dr. Martha M. Eliot, associate chief of the bureau. Chairmen of the committee are Dr. Nicholson J. Eastman, Professor of Obstetrics at the School of Medicine, Johns Hopkins University, and Dr. Henry F. Helmholtz, Chief of the Pediatric Department of the Mayo Clinic, Rochester, Minn.

Supporting the recently declared objective of the Academy of Pediatrics "to make available to all mothers and children in the U. S. A. all essential preventive, diagnostic, and curative medical services of high quality, which, used in coöperation with the other services for children, will make this country an ideal place for children to grow into responsible citizens," the Children's Bureau advisory committee urged full coöperation in the projected survey.

Dr. Eliot reported that the advisory committee also approved the position recently taken by the Academy of Pediatrics in regard to the financing of any extension of medical services for children that "cannot be reduced to any one simple formula." It may be provided for by direct payments to the physician by the family, by voluntary or compulsory

insurance plans, or by tax-supported local, state, or federal programs.

Recognizing that any comprehensive health program will be possible only if facilities and personnel are available, the advisory committee laid special stress on building up medical and nursing staffs in hospitals and on training more obstetricians, pediatricians, nurses, and social workers in the care of mothers and children. Grants for research were urged.

One national goal, the committee held, should be "the delivery of all women in good hospitals under the care of competent physicians. To this end, the committee directed attention to the need for building more maternity units as parts of general hospitals.

"It would be highly desirable that the general hospitals be health centers designed to supply all types of medical service to a given area," the committee said.

More beds for babies and older children in general hospitals and better facilities for the care of premature and new-born infants are needed, and "the establishment of children's hospitals in association with general hospitals or medical school units is to be encouraged," the committee said.

Tackling the problem of the health of school children, pointed to by Dr. Eliot as "one of our most serious neglects revealed by draft rejections," the committee called for the creation in the Children's Bureau of a special unit on school health to work in coöperation with the U. S. Office of Education, Federal Security Agency. It also urged local, state, and federal authorities to help local departments of health and education establish good working relations in providing preventive and curative health programs for school children.

Relating the Psychosomatic Viewpoint to Public Health Nursing^{*}

RUTH GILBERT, R.N.

*Supervisor of Social Service, Psychiatric Service in the Community,
New Haven, Conn.*

I N recent years we have been able to bring ourselves to a broad concept of what can be called the psychiatric point of view and have made progress in relating this to our work as public health nurses. We did not always have this broad point of view both because the field of psychiatry and mental hygiene was, naturally, much less developed, and because we as nurses had not yet had time or experience to grasp the ways in which this point of view and body of information could be integrated into our nursing work. Until recent years psychiatrists were interested in precise diagnoses. We were all also spending a great deal of time—and probably having to spend it—with the help of the allied field of psychology, in recognizing and dealing with the more serious mentally defective, that is, the feeble-minded or worse. In addition, in those days a great many people thought that “mental hygiene” consisted of a body of rules which could be learned, followed, and passed on to others who would then also follow them. Thus the world would shortly become a happier, more smoothly running place—in the eyes of those to whom these “rules” seemed good, at any rate.

Then we gradually learned better. As the result of a lot of hard work—

investigation and treatment experience—it became apparent that in spite of individual differences, human beings, sick or well, are much alike under the skin with no sharp dividing line between the maladjusted and the “adjusted.” We began to realize that those terms are to some extent sociological because the place and particular group in which an individual lives sets the standards for his behavior. We learned also that people’s behavior is not based on conscious, reasonable motives but is based in large part on, unconscious motives, some of which can be clarified and understood by the individual himself and by others. We learned that diagnostic categories are not always precise or even of leading importance.

The public health nurse has learned that her tie-up with psychiatry is not alone for the purpose of recognizing major mental illness or intellectual inadequacy in her patients and securing appropriate help for these, though this continues to be important. She has learned that psychiatry can be of most help to her through aiding her to understand the feelings and resulting behavior of individuals, and therefore of families, so that she can gauge her work in these families accordingly, understanding better the differing needs of all these people and the methods of work which will be most helpful to each of them. Furthermore, the public health

^{*} Presented before the Public Health Nursing Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

nurse has learned to understand and use her own feelings and emotional reactions more accurately, and how to manage herself in relation to her patients. As illustration we can cite again the nurse's developing understanding of the so-called dependency relationship between herself and her patient. Years ago we were apt to foster such a relationship unthinkingly from a desire to "get things done" and to relieve symptoms of ill health as quickly as possible. When the evils of this were pointed out, we shied away from all dependency relationships with our patients. Now we are learning to individualize and to foster self-help when the patient is able to achieve this, but to accept dependency upon us by the inadequate individual who needs a dependency relationship temporarily or perhaps permanently.

Interestingly enough, we have learned our lesson sufficiently well through these years so that now we can begin to differentiate again between certain concepts and certain fields of work from the psychiatric point of view without losing sight of the whole field of human behavior. Some of these special aspects, within this larger field especially interesting to nurses, are, for example, the field of child development; at the other extreme, the better understanding of the aged. Psychiatry by itself is not responsible for this entire development. Psychiatry, psychology, physiology, sociology are increasingly making use of each other's findings and in many ways growing closer together.

Another example of a special emphasis within this broad framework is the material we are discussing this afternoon, namely that of psychosomatic relationships. We are considering the intimate tie-up of people's feelings—their emotions—with bodily symptoms and the balance of these two sets of factors. This is something in which public health nurses are interested,

whether they include a "morbidity service" in their program which means that they spend considerable time in bedside nursing, or whether most of their time on duty is spent in direct health teaching with those presumably not ill.

The reason for the interest of those who do bedside nursing is obvious since they inevitably will find patients whose emotional difficulties are finding expression in bodily symptoms in the way which has been described to us by Dr. Dunbar.

Nurses who are not doing a bedside program also find an understanding of psychosomatic relationships helpful—better to say necessary. Dr. Dunbar has brought to your attention the immense group of the chronically ill, and has pointed out that it is our job to help to interrupt this illness, when possible, before it has reached chronicity. I think we might say that there is a still larger group of individuals in our population of which the chronically ill individuals might be considered as the core. These are the people who have a smaller measure of general good health and well-being than could be the case, but whose condition is not sufficiently acute to bring them to the attention of a physician except perhaps sporadically and who rarely have consistent help in their difficulties. In this army of people are many individuals whose emotional problems are bearing poor fruit in the form of a lesser degree of somatic symptoms than some we have been discussing, but still to a degree sufficient to keep them "ailing." I think "ailing" is the word for this kind of individual, and I am sure you all know numbers of persons of this kind, and have been troubled to know how they could be helped.

Children may well belong in this group but for the moment it is adults whom I have in mind. The picture which rises most clearly to my mind,

and I believe yours too, is that of a mother with a number of children in one set or another of difficult circumstances, never really 'sick, but never really well. She does her work with difficulty, she has no joy in it and little in her family, and she has one or another or a series of somatic symptoms which never can be quite pinned down. It is possible that this woman may belong to the group we are discussing.

In *News Notes* of the September, 1944, number of *Public Health Nursing* magazine appears a rewrite of an article, *Highlight and Shadow* published in the Maternity Center Association's *Briefs*. The article described the successes we have had in cutting down the maternal mortality rate. It goes on to say that a number of forces are at work which still militate against the safety of mothers and new-born babies. One of these is designated as "the tragedy of the under par." The article goes on to say, "... True health is positive. It is the abundance of physical and spiritual vitality which enables a person to get the most out of living. Health is not an end in itself, it is only a means to an end.

"Many a mother is dragging through life with a tired, under par, unwilling body. Her contribution to her home, to the care of her children is at low ebb. She is able to do the necessary things but life may be a burden. The tragedy is that so many of these miseries and ailments are preventable and curable. It is only when a physical or mental breakdown occurs . . . that the usual health facilities of the community are marshalled to protect these women. Notwithstanding much big talk about the importance of preventive care—the bulk of community health service is really emergency sickness service. If we accept the concept of positive health—the best possible health for everyone—then communities must recognize more fully the importance of preventing, discovering early and treating disease."

Time was, some years back, when many public health nursing organizations initiated a program of "adult

health supervision." This program never has seemed to me to go very well though and, naturally, I say this with some hesitation. One reason for this may have been that we became increasingly involved in our programs for children about whose care there was an ever-growing and really helpful body of information for our use. However, the lack of success of many of these programs was not entirely that our attention was drawn elsewhere. Our attention could not have been diverted if we had had more understanding of ways in which we would be helpful to adults.

Our knowledge of the health needs of adults is increasing, however. Probably the widest gateway by which public health nurses are again and with greater understanding entering the field of adult health education is industrial nursing which, of course, has had tremendous augmentation during the war. We realize that the health or illness of industrial employees often is not only a matter of the individuals but relates also to the well-being of their families. Many of these adult employees are parents of children. Since we know that the illness of adults who form the emotional environment of children is very significant in the development of the child, we see again that whether or no our special interest as public health nurses has seemed to emphasize work with children, our work with adults is an essential part of our program. We need, then, to work as accurately and as thoroughly as we can with the great group of "ailing" adults, some of whom undoubtedly are showing psychosomatic symptoms in the sense described.

What can we do for them? How much can the public health nurse be expected to grasp and use of the theory of psychosomatic medicine? Is this a time-consuming method of working which may also add to our already large case loads?

First, we can say—and with some thankfulness—that the ultimate diagnosis is not ours to make. This is the job of the physician. It is not an easy job, and much work remains to be done in the field of psychosomatic medicine.

We can, however, take the definite step, if we have not already done so, of accepting without reservation that this specific relationship between the emotional and the physical or physiological exists, and acquaint ourselves with the commoner patterns of this expression of difficulty. Dr. Dunbar has helped to clarify this for us. If we do so accept and add to our information, it means that we are able to shed any clinging shreds of scorn or perhaps merely of impatience with the individual whose source of difficulty may lie as much in his own feelings as in the virus he has acquired from outside himself. When we remember our own "nervous indigestion" or similar physiological symptoms when we have been confronted with a situation which alarms us, we understand better.

Second. I want to add further to the suggestions Dr. Dunbar has given us for working with these individuals by pointing out that we can still further sharpen up our powers of trained observation of our patients. And I want to emphasize this point and to spend most of our remaining time in discussing it.

It can be said first that nurses in general do a good job in their observation of patients. We as a group are rather dutiful people, prone to spend considerable time and effort in getting rid of our possible deficiencies. Our powers of observation are, on the other hand, one of our assets, and we can take pride in this and use it further. We are trained from the outset to observe the somatic symptoms of the patient precisely, and the better nurse we are, the more accurately and fully do we note those symptoms. Public

health nurses in addition to noting such signs and symptoms are trained and experienced in observing the patient's *way of life*. The phrase, "way of life" conveniently covers a big field. Examples of what we observe here are: type of employment, wages, reactions to employment; type of home, standards of housekeeping, standards of home-making (a very different thing): family relations including the recognizable capabilities and inadequacies of the various members of the family, the way they get on together, the way the children are trained, nurtured and are, or are not, given security, the goals an individual or a family may have, the peaks which he or the family as a whole has reached or the slumps into which they have fallen; as time goes on, something of the background of the individual. It is no mere manner of speaking to say that the nurse perhaps more than any other professional person acquires an intimate contact with the family which enables her to have much of this information. In some instances when her services are not desired, she does not acquire this information easily or perhaps at all. Also, when a public health nurse serves a very large rural area she cannot have the intimate personal contacts which develop between the nurse in an urban district and her patient. Nevertheless, basically it is true that the nurse knows or can know her patient's way of life.

To state what I have just said more precisely, the nurse has carried over in her public health nursing work her skill in observation of the patient's somatic symptoms to some degree of skill in observing three things, namely, the patient's circumstances, the patient's own characteristic adequacies and inadequacies, and third—a combination of the other two—the patient's characteristic reactions and behavior.

This fits into our subject of psycho-

somatic relationships in the following way. All living might be described as a surmounting of obstacles. A successfully surmounted obstacle means that we have been big enough to "get over it." This depends on how big the individual is relative to the obstacle. The circumstances which surround the individual, some of these of course of his own creating, are his particular obstacle. Of these circumstances the nurse is able to observe a great deal that is of importance in understanding the reactions of the patient.

You have, of course, often watched a baby just able to walk as he approaches some ponderous object in his path—perhaps a big chair—which he cannot climb over in his present state of development, nor is he yet capable of knowing that he can move around the chair. He cries in angry frustration. So with the adult patient of whom we have been speaking. He is living along with the obstacle—not as clearly defined and obvious as the chair—which he does not know how or is not able to surmount. His response may be somatic symptoms since as a socially disciplined person he may repress the emotional explosion of the infant. Our point is, that to a considerable extent the nurse can observe both the patient and his difficult circumstances as she did the baby and the chair which blocked his progress.

I want to make briefly five points about the way in which these observations can be carried out if they are to be skilled, helpful ones.

In the first place, the nurse's study of the circumstances of an individual or family is best done *as a series* as far as this is possible. (One observation does not make a summary.) Even if a nurse returns to the same family only infrequently, she can seek to reinforce her knowledge of the same points previously observed. If we see on the occasion of one visit that a mother is

embroiled in incompleted housework, with the familiar picture of confusion present, and with irritation apparent in her handling of small children; if we often find her with vague complaints of "stomach trouble," headache, backache, etc., for which she does not consult a physician; is this then true on our next visit? is it different in any degree and precisely how is it different? As you know, we may find that the circumstances we saw on the occasion of the first visit are characteristic; we may find that those circumstances were the exception. Repeated observation of the same facets of family life, if we are in a position to make them, give us a true picture. Naturally we do this, all of us, to a certain extent. But we could carry this out more consistently and purposefully.

A second point is allied to the above. There is great value in observation of an individual or family at *other times than during crises*. True, an individual handles a crisis in the way in which his whole life has prepared him to do this. But we know, for example, that many neurotic individuals may rise to great courage and effectiveness at a time of extreme danger or difficulty whereas that same individual when confronted with the daily smaller difficulties of living may be a burden to himself and others.

Third, a nurse cannot make accurate observations if she is at the time emotionally aroused herself. I remember a very good public health nurse who came into a home just after a small baby had fallen from his bed, and found the mother absent. She was frightened and angry at the apparent neglect of the baby. Her impression of the total situation she later found was not entirely just, and her relationship with the mother suffered because of what she said under stress of her own feelings when the mother returned.

Furthermore, a fourth point, we can

never forget that our observations may be *colored by our own standards* of individual behavior or family life, and so may be inappropriate to the situation observed and therefore an inaccurate basis for helping that individual. Perhaps this can well be briefly pointed up by the old couplet,

"I beat her; she beats me—
We love each other tenderly."

A fifth point relative to the observation of the patient's way of life has to do with the *specific accuracy of our observation*, and also with our recording of this. Let me give you an example of what I mean.

The nurse writes on her record regarding a home visit made because of an upper respiratory infection on the part of a child. TPR are indicated in the usual place on the record form. For the running record the nurse writes,

"Pt. being kept in bed. General care and throat irrigation given and mother instructed in these. Apartment dirty, dishes unwashed, mother seemed tired and disheveled. Return visit in two days."

You will agree with me that the nurse missed a trick there—that either she did not observe accurately, or failing to realize the importance of this observation in understanding the situation and planning, did not sort out her impressions clearly. Because, on further discussion with the nurse who made this visit—and it was a "good" visit—one finds that the observation actually was as follows:

"Pt. being kept in bed. General care and throat irrigation given and mother instructed in these. She handles equipment well. Child reacts well to her. Three room apartment dirty, windows unwashed, corners not dug out and clothing stacked on chairs. Remains of breakfast are doughnuts and coffee. Mother looks thin, posture and color bad, hair dry, loose upper dentures. House-dress torn as well as dirty. Mother said, 'I never get anything done.' Return visit in two days."

I hope you do not think that we have strayed from the subject of psychosomatic medicine in relation to nursing, because I do not think we have. We have been saying that since somatic symptoms on an emotional basis are the result of an individual's unsuccessful struggle with his circumstances, the nurse must put her best powers of observation to work on both the individual and the circumstances.

All right—now we have this careful, accurate information as the result of our observation. What are we to do with it?

Some of this material should be brought to the physician speedily and in as much detail as he will accept. How else is he to gain knowledge of it in many instances?

But this is also true: We shall have found that the process of observation and the process of treatment are not two separate things. The nurse finds that as she understands the situation better, at that time she and the family find ways of improving it, some of which may help a great deal, some a little. This is a cumulative and dynamic process which except in very difficult cases results in some progress if the nurse is resourceful. Often she need not rely solely on her own resourcefulness but can call on other community agencies when this is appropriate and when such agencies exist.

Again—still speaking of how the nurse shall use the results of her observation—here is a ticklish point which we can raise as a question but which each one of you will have to think through for herself. How far can the nurse take the responsibility of de-emphasizing somatic symptoms when her knowledge of the total situation indicates that emphasis on the somatic symptom by referral of the patient for physical examination may imprint the pattern of physical illness more deeply? I am referring here to patients not

already under the care of a physician and who belong to the "ailing" group described. Let me give you briefly a case in point and you can decide for yourselves whether you think the nurse proceeded wisely.

A public health nurse was called into a home by a young mother who had heard that the nurse could give help in budgeting, especially in buying food for a balanced diet. This woman's husband had been in the armed forces four months. He had taken all responsibility for buying during the five years of the marriage. There were three children. The mother complained of dizzy spells. The nurse noted that this dizziness always occurred in connection with some budget problem. Well, a good many of us become a little dizzy when we confront the budget. Seriously, however, what is the nurse to do about this dizziness? Should she at once suggest physical check-up? There is no family physician in this instance. Dizziness began after the husband went into the Army. Further inquiry led the nurse to feel that she would at least postpone suggestion for physical examination in order not to emphasize the somatic symptom while at the same time attempting to give all the help she could give—and get—regarding the family circumstances.

Two questions frequently are raised—or felt, though not expressed—about this more analytical way of working. First, is it not time-consuming? On the contrary, I think we may say with some assurance that it is time-saving. If you have a map, even though the map lacks some details, you get where you wish to go much more quickly than would be the case were you steering by more vaguely seen, though somewhat familiar, landmarks. In other words, precision gives our work direction and thus speeds it up. We make fewer unproductive, scattered visits when we are more keenly alive to the situation and

what we are trying to do in it.

The second question often asked is: Does not this mean that the nurse takes on extra work—makes more visits—before she has, as we still sometimes say, "corrected" the problem situation? This, too, can be answered in the negative. We need to remind ourselves that we are sometimes justly accused of being perfectionists. "Correction" is a relative matter, and has limits. Granted the limitations on the nurse's time and on the ability of the patient to improve, within these limitations we can put our time to the best possible use.

One cannot and probably should not tie off a discussion of adult health in these days without specific mention of the returning men and women of the armed forces and the adjustment problems which will then confront us. However, it seems that for our purposes here at the moment we should not make a special category of these individuals. They *seem* to constitute a special category because their numbers are legion. Our degree of responsibility for these men and women depends somewhat on the stage of development of the area in which we work. Hopefully we need not assume the sole responsibility for solving or even steering problems of adjustment of men and women discharged from the armed forces. This is a community responsibility which is best assumed by coördinated community effort including businessmen, the legal profession, the religious leaders, and others, as well as physicians and the group known as welfare agencies of which we are one part. If such coördinated community activity is not under way in our community, I think it is our responsibility to aid in getting this in motion. It is inevitable, however, that we shall come in contact with many discharged veterans, some of whom will need the services of the nurse. Basically their problem is no

different from the situations we have been discussing. We shall need to observe them and their circumstances and the way they behave in these circumstances, in a manner no different from that described. True, their circumstances may often be unusual and poignant and related to war experience. But no two people have the same set of circumstances, be they civilians or members of the armed forces.

I want to turn now to one brief illustration of this same kind of situation in a different age group—namely the school age child. Having established to a certain extent some of the ways in which we as nurses are concerned with emotionally based somatic symptoms, we can use an illustration at this point to bring more of our case load into this same focus.

The small boy I have in mind was referred to a child guidance clinic by the school nurse in the large city school which he had been attending. He was 10½ years old at the time of referral during the summer and expected to enter the fifth grade this fall. The nurse in referring this child said that in recent months he had developed a series of fears and anxieties in regard to going to school, then with regard to going to Sunday School, and finally was afraid to leave his home except in the company of his mother. Along with this he had physiological disturbances such as vomiting and diarrhea. When first seen by the psychiatrist he appeared rather small for his age, friendly, but definitely tense and fidgety. He had a marked stammer. In response to a question he said that he liked school. He seemed to get on quite well with other children and had what might be called normal interests for a boy of his age in that he formerly did well at active games and wanted, when he grew up, to join the Navy and be on a P.T. boat. A series of interviews with this child and also psychological study were

planned. The mother was much interested in having this done. She was worried about his fears and somatic symptoms but had few "complaints" to make about his behavior otherwise. He did quarrel excessively with his brothers and sisters. She was concerned, however, as to how to get him back to school this fall. Of this she said, "He will wait until the last minute and then go through what he did before—the nausea and diarrhea."

Psychological study showed this boy to be of adequate intelligence and ready for his fifth grade placement as far as school achievement was concerned. However, psychological study as well as interviews with the psychiatrist showed that this child seemed to feel misunderstood at home and dissatisfied with his abilities. He seemed afraid to stand on his own feet and still wanted to lean heavily on his mother.

The mother appeared at the clinic as tired and harried. Material from the school nurse's knowledge of the home brought the psychiatrist the information that she had for years managed her family of five children with the greatest difficulty, that she was over-precise in her housekeeping standards, and was never able to live up to these, that her husband was working long hours and was nervous and irritable. She had observed that the child had been somewhat lost in the shuffle in that, falling as he did in the middle of the group of children, he was neither baby nor older child. He had not been helped to take responsibility at home. In fact, as a supposedly somewhat sickly child, he had been protected from small household tasks. Yet his fumbling attempts to stay on as a baby were not well received by his parents either. He had always been a child whose stomach yielded up easily. Afraid, not ready to stand on his own feet, with the vomiting already "natural" to him, his pattern of somatic symptoms under pres-

sure of new situations was readily established. His stammering was also seen to be of emotional origin. Interpretation to the family and to the school; the successful meeting of the new situation at the clinic by this child over a period of time, gave him enough added security so that now he is able to take his hand out of his mother's. At the present time he is doing quite well in school and is not showing the symptoms for which he was referred to the clinic.

Carrying this discussion one step further in the chronological age groups, I would like to give you in closing one further illustration which has to do with an infant.

During the past summer a nurse went to a home in her semi-rural district used as a foster home by a state child-placing agency. The foster mother in this home was a warm hearted woman who had an imposing record of good care of infants, placed in her home by the state, who needed special care and "building up." A new foster child had come to this home since the nurse's last visit. She was shocked when she looked at the baby. He was five months old, resembled a new-born in size. His color was bad, he was emaciated and dehydrated. His movements were feeble. This child had come to the foster home from an institution where he had spent the five months of his life—an institution which had tried its utmost to bring this baby along to growth and vigor. Repeated physical examinations revealed nothing specifically wrong with this infant as a basis for his condition. There was no particular lack of tolerance of the formula on which he had been placed and which was still the ordered feeding in the foster home. The nurse returned to this home five weeks later after an absence when another nurse was in touch with the home. She did not recognize the baby. He was filled out,

rosy, active. Here we undoubtedly have an example of a baby who was dying, and whose somatic symptoms were due to emotional starvation in a baby who could not cope with that deprivation. The foster mother had not changed the baby's routine, but she had obviously administered the routine as a mother to her child.

I give you this illustration, not because the nurse herself had a hand in working through this problem, but because it shows as clearly as any illustrative material I know the tie-up between the somatic and the psychic in this age group. When we have constantly in mind that the reactions of the adults we have been discussing stem in large part from the kind of nurturing and training experiences they have had as infants, we realize what an important job the nurse has in this connection. Probably you have read Dr. Margaret Ribble's *The Rights of Infants* which develops this material in relation to the new-born and infants in a highly specific way, and which is fresh and necessary material for every nurse.

SUMMARY

We have been discussing psychosomatic medicine as it relates to public health nursing in the following manner. We recognize this as the tie-up between the physiological and the emotional. Often we see the somatic symptoms first. As nurses we can benefit our patients by observing not only the somatic symptoms but the circumstances of the patient and family and their reactions to this to a certain extent on the basis of their own adequacy or inadequacy. This approach may be especially useful in working with the immense number of "ailing" adults who usually do not have consistent help. We can sharpen our observation of these patients. This process stimulates and directs our concurrent work

with patients, and reporting of our observations aids the physician. This approach is applicable to all our work. It is not an additional demand upon our

time. On the contrary, it is a time-saver but it does call on our skill, resourcefulness, and our background of information.

National Health and Welfare Retirement Association

The formation of a National Health and Welfare Retirement Association, Inc., was announced in January by Gerard Swope, Chairman of the Board of the new corporation, who described it as a major advance in the field of social welfare. The Association is a non-profit organization created to extend retirement pensions and life insurance coverage to the workers in private, social, health and welfare agencies throughout the country who are not now covered by Federal Social Security.

Pointing out that these workers have pioneered many advances in health, child care, rehabilitation, and social legislation without thought of reward, Mr. Swope said that few of them had been paid in a manner which would permit them to retire upon reaching old age after their service to the community. To provide them with the equivalent of at least the minimum social security benefits which government and industry normally extend to the wage and salary earner is the goal of this Retirement Association.

The Association has recently been authorized by the New York State Superintendent of Insurance after several years of study by a committee of the National Organization of Community Chests. The study resulted in the formulation of a plan of reinsurance by a well known mutual life insurance company which guarantees the benefits

of the plan. Under this scheme social, health and welfare workers may enjoy minimum old age security, enabling the agencies to continue to attract better grades of personnel. Under the plan employees of the participating organizations normally may retire at the age of 65, with the option of retiring after 55. Participants will be eligible to receive annuities for past service and for future service based on individual salaries. A death benefit amounting to approximately ten months' salary is provided for each participant during the initial years of the plan's operation. After the tenth year the death benefit will be equal to the accumulations of the contributions of the employer and the employee.

Employees are said to be able to continue their benefits even if they change their jobs, since membership in the plan can be transferred from one private agency to another or from one community to another. Active enrollment will begin in February. Organizations eligible to join the plan include hospitals, settlement houses, visiting nurse associations, family welfare societies, and health and welfare workers in all fields. Sixty trustees have been elected, including outstanding leaders of industry, welfare and civic affairs. The Association has its offices at 441 Lexington Avenue, New York 17, N. Y. Homer Wickenden is the new executive.

Preparation of the Public Health Nurse to Meet Psychosomatic Problems in Today's Health Program*

MARY C. CONNOR, R.N., F.A.P.H.A.

*Educational Secretary, National Organization for Public Health Nursing,
New York, N. Y.*

THE question presented by an increasing number of nurses during the past year, namely, "How can I prepare for the position of mental hygiene consultant?" has brought forcibly to our attention the dearth of public health nurses so prepared. In view of this we have been asking ourselves, "Who is to help the supervisors and staff nurses on the job if we are to make the contribution in mental hygiene which we believe we can and should?" While recognizing that the war has accentuated mental hygiene problems, we know that these problems have always been with us, although fewer in number and less striking in character. Through its violent disruption, war forces us, as only a war can, to a new perspective, and thereby brings issues into clearer focus. As a profession we are "coming of age" and must now make plans for our future growth. In this, the rôle of experts is vital if we are to continue to grow.

For practical purposes in this discussion, let us first consider the public health nurses who are now on the job. It is obvious that in carrying out their functions they are inevitably confronted with the mental hygiene needs

of their patients. Dr. Dunbar has indicated the scope of these problems, coterminous with life itself, and Miss Gilbert has given excellent illustrations of the public health nurse's skill in some cases and lack of it in others. The fact remains that the public health nurse encounters these needs at every turn, and anything that can be done to strengthen and improve what she is doing is a gain.

Her rôle as the generalized health worker is comparable to that of the internist in medicine, as described by Dr. Louis Hamman of Baltimore in a paper entitled, "The Relation of Psychiatry to Internal Medicine,"¹ as follows: "To the specialist, psychiatry is another specialty operating in a contiguous but separate domain. To the internist, it is a vital and integral part of his work. Indeed I find it impossible to formulate a clear expression of the relation of psychiatry to medicine, so intimately and inextricably are they bound together. The physician studies and practises psychiatry continuously, even when he protests that he has not the least knowledge of formal psychiatry. It is the chief instrument of his success, even though he may practise it unconsciously. . . ." Realizing this, we believe it important that the nurse be conscious of her contribution and the possibilities of growth in this contribution.

* Presented before the Public Health Nursing Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

There are two channels already in use through which we may help the staff nurse—through formal education in the university, and through in-service education. According to the U. S. Public Health Service² figures, as of January, 1944, there were 19,821 public health nurses, exclusive of industrial nurses, employed in the United States, the Territories of Hawaii and Alaska, Puerto Rico, and the Virgin Islands. This total does not include figures for New Jersey. Of the 19,042 for whom qualifications were received, 5,564, or 29.2 per cent, had completed one or more years in a university offering an approved program of study in public health nursing. This percentage represents a minimum figure, since it is exclusive of those nurses who have completed part of the program and others who have a baccalaureate degree on admission to the university.

By an "approved program of study in public health nursing" is meant the professional content recommended as the special preparation for public health nursing and approved by the National Organization for Public Health Nursing. Thirty universities, located in 20 states in various sections of the country, offer such programs; 21 of these 30 offer a course in mental hygiene carrying from one to three semester hours' credit; 8 of the 21 also offer a course in child development carrying from one to three semester hours' credit. One other university offers a course in child development. A course in psychology (considered by some as introductory to mental hygiene) is required in the program of study by 21 of the 30. In some of the remaining 9 universities in which these courses are not required in the program of study, students on admission have already completed them.

It is probably unnecessary to warn this audience against drawing unwarranted conclusions from the foregoing

data which are based on titles of courses. As most of us know from personal experience, either as former students or faculty members, or both, "things are not always what they seem" in the realm of titles in educational bulletins. They can be very misleading, especially in this field of mental hygiene. The course that is labeled "Mental Hygiene" may not be the one in which the student gets what we as public health nursing educators believe she needs. In fact, it is sometimes startling to find where she does get it. With this qualifying admission in mind, and aware that a new day may be dawning when courses will not be set up on the basis of "minds" or "bodies" or in terms of the particular profession interested and prepared at the moment, for purposes of this discussion, we may say that a minimum of 29.2 per cent of the public health nurses are likely to have had courses in psychology, mental hygiene, and child development. In regard to the total program of study, we have no facts on how the principles of mental hygiene are integrated and applied. This is much more important, many believe, than whether a separate course is offered, because mental hygiene is one of the strands through which an integrated program is achieved.

What of the preparation of the remaining 70.8 per cent who have had less than a complete program of study or no formal postgraduate professional education? Both for this group and the group who have had formal preparation, staff education programs in mental hygiene should be planned. A considerable number of public health nursing agencies have developed such programs and, in addition to the psychiatrist, have drawn heavily on the services of the psychiatric social worker either on a full- or part-time basis. Methods for staff education programs have to be worked out locally,

and it is evident from current practice that we are growing in our appreciation of the case study or family study conference or seminar method. Reference is here made to the planned discussion of the total needs of a particular patient in relation to his family and the community of which he is a part, as well as the resources and limitations of the professional groups serving him. This conference method means relatively small groups and in a large agency will probably involve more time, but there is no question of its value in comparison with the lecture method. The conference, well planned and well conducted, is the quickest and most effective way to come to grips with a problem.

While deeply respecting the advantages of formal education, we agree with what Dean Gildersleeve of Barnard College said, "That great American superstition that the only way you can learn anything is having a course in it, has, of course, been a dreadful blight and handicap in our American education." We would do well to take heed of this warning from general education, since we are in a stage of development in which the patterns we set may be influenced unduly by this "blight."

In choosing specialists to assist us, we need to be discerning about their approach. Too long our thoughts have been directed to the physical illness of the patient on the one hand, and to the mental ills on the other, as though they were separate and distinct. Psychosomatic medicine stresses the mental as one aspect of the functioning of the whole organism and the effects of mental and emotional functions on the organs of the body, as well as the effects of disordered organs on the function of the human being as a whole. The work of the nurse as well as that of the doctor must be transformed to be in accord with this concept. She needs to have an appreciation of how illness affects behavior and vice versa, and the part

which she herself plays in the nurse-patient relationship. Too often she is not aware that she is a factor in the situation and thereby fails to make conscious use of herself as a resource. The nurse needs to understand human nature and must be interested in her own growth in this understanding.

No discussion of the preparation of the public health nurse is complete without reference to her basic education in nursing as a whole and in relation to the specific part of it devoted to psychiatry. In regard to the former, while much still remains to be done, steady progress has been made for the past thirty years, if the following may be taken as evidence—growth in professional self government, studies and surveys of nursing service, strengthening of curricula and raising of other educational standards, establishment of schools and departments of nursing in colleges and universities, and closer relationships with other educational groups. The largest single problem affecting the vast majority of the 1,297 schools is the economic dependence of the school on the hospital, with the result that student nurses still furnish all or a large part of the nursing service of the hospital. Closely related to this is the fact that while, as a profession, we subscribe to a democratic philosophy, we do not apply it in the education of the nurse. This is partly due to our traditional heritage from clerical, military, and medical influences, but also inescapably to the fact that the hospital is an institution where the doctor has to assume an authoritarian approach in the patient's own interests, where life and death are in the hands of the personnel, and, therefore, strict discipline in certain matters must be observed. However, this is equally true of all groups working within the institution and not only of nurses.

Isabel Stewart, one of our outstanding leaders, in her recent book, *The*

Education of Nurses, points out that one of the important problems facing the profession is in this realm of philosophy. She states:

Nursing educators who are concerned with formulating a democratic philosophy of education must be able to evaluate, balance, and integrate all these different ideas and methods. They will have to give due weight to individual development and at the same time provide for the general well-being; to harmonize interest and effort, freedom and duty, theory and practice, independent thinking and respect for authority. Nursing schools must consider how they can provide for both technical training and liberal education, how they can insure proper preparation of the professional nurse without sacrificing the woman and the citizen, how they can safeguard the personality of each individual and at the same time provide for necessary discipline and efficiency to meet the crises of life and death. . . . One of the first steps toward improvement seems to be a reconstruction of the philosophy of nursing education to make it more consistent within itself and to bring it into harmony with accepted democratic principles and with modern methods of education. The effort to preserve the best in the nursing heritage and combine this with other elements needed in adjusting to modern life is one that will take much study and careful thinking.

The growth of collegiate and university schools of nursing is a most encouraging development, even though the number, estimated at about 140, is relatively small. In many of these, the pattern of nursing education has not been altered fundamentally, and academic and nursing education courses exist in various combinations and varying degrees of integration—all the way from a very slight affiliation between the university and the school of nursing, to the other extreme, in which the school is an integral part of the university and in which there is a thoroughgoing integration of academic and professional content. In the latter type of school conditions are most favorable for giving the students a sound foundation in mental hygiene.

In regard to psychiatric nursing, in

only one state and the District of Columbia do the state boards of nurse examiners require affiliation in psychiatric nursing. The reason most frequently given for not requiring it is that the personnel in psychiatric institutions is not prepared for the educational responsibility of students. On the other hand, the institutions (and this is also true of tuberculosis hospitals and sanatoria) either do not have the money to finance an educational program or are satisfied with the nursing care by the personnel classified as attendants.

According to the 1943 List of Schools of Nursing Meeting Minimum Requirements Set by Law in the Various States,³ there are 1,297 schools in the country. Slightly more than half, or 54 per cent, provide psychiatric nursing experience. This is an increase of 4 per cent over 1939. In 31 per cent of the 54 per cent, it is given through affiliation, and in 18 per cent it is given in the home hospital; in 1 per cent it is given partly at home and partly through affiliation. Four per cent of the schools reported that it is elective.

The Nursing Committee of the American Psychiatric Association has been greatly concerned about the nursing care of patients in mental hospitals for several years, because the supply of adequately trained nurses appears to be decreasing, while the number of patients is increasing. For this reason, the committee requested assistance from the Rockefeller Foundation to study the situation. A grant was authorized and the work was begun July 1, 1942, by Laura Fitzsimmons. A progress report of the survey appears in the March, 1944, issue of the *American Journal of Psychiatry*, and also in the August, 1944, issue of the *American Journal of Nursing*. A few facts stated in these articles are mentioned here, since they relate to the subject in hand. During the last fifteen years there has been a

tendency to discontinue schools of nursing in mental hospitals because it was believed that this type of hospital could function best as a laboratory for clinical experience for students from the schools of nursing connected with general hospitals, and in the field of postgraduate education. While this is true, Mrs. Fitzsimmons points out that these two sources do not furnish us as yet with an adequate supply of graduate nurses interested in mental nursing. The data reveal that, of the hospitals visited in the United States, only three had active postgraduate courses at the time, and that these three courses had a total enrollment of four.

In one state where there are no postgraduate courses in psychiatric nursing and only one graduate nurse who has had a course in psychiatric nursing, there is a state hospital with 1,049 patients. Data submitted by the state boards of nurse examiners in January, 1944, showed 32 mental institutions conducting schools of nursing and 17 of these are located in New York State. When we consider that mental patients occupy more hospital beds than do all other hospital patients combined, and that only one state and the District of Columbia require psychiatric nursing experience for all student nurses, the great need for psychiatric nursing is apparent. The growth of knowledge in psychosomatic medicine and the impact of the war force us, since we believe an affiliation in psychiatric nursing is as essential as one in medical nursing, to assume our share of the responsibility, as public health nurses, to assist state boards of nurse examiners and state leagues in making the resources of psychiatric institutions available to nursing education.

As it is not possible to discuss postgraduate education in public health nursing and ignore basic nursing education, so it is equally impossible to omit mention of the quali-

fications of those charged with this responsibility. As a profession, we are aware that we do not have a sufficient number of experts prepared to meet present demands. This is due to the fact that as a young profession, not yet one hundred years old, we have been occupied with problems of the education of the nurse as a practitioner. First things must come first and this is the first period of growth in any profession. We are emerging from it and the time is due to prepare specialists in the clinical fields, in administration, supervision, teaching, and research. With this in mind, the National League of Nursing Education appointed a Committee To Study Postgraduate Clinical Nursing Courses in July, 1943, with representation from the various nursing groups, including public health nursing. In the June and July, 1944, issues of the *American Journal of Nursing*, the committee gives a progress report of its work during the past year. It has drawn up basic principles which underlie advanced nursing education, and, through a subcommittee, has outlined an advanced course in psychiatric nursing. It is hoped that the work of these two committees will give impetus to the development of advanced courses where university and clinical resources are adequate.

Three universities have already worked out advanced programs of study in psychiatric nursing. In several other universities where programs of study in public health nursing and psychiatric social work exist, the representatives of these two professions have been exploring the possibility of developing a program of study to prepare the public health nurse as a mental hygiene consultant, through a pooling of the university resources in both fields. We believe that the advanced preparation of the specialist in psychiatric nursing whose work lies in the hospital field, and the preparation of

the mental hygiene consultant in public health nursing, is the same up to a certain point—that is, there is a common core of knowledge and skills. The difference lies in the emphasis, and in the amount of time allocated to the various areas of curriculum content, including practice.

In working out an advanced program in mental hygiene, available resources in psychiatric nursing education, public health nursing education, and psychiatric social work education need to be considered. It is believed by many that the training in psychiatric social work is the best formalized training now available for mental hygiene. However, we believe that it is possible, by utilizing all the foregoing resources in two or three universities where they exist together, to develop a program of study pointed especially toward the preparation of the public health nursing consultant in mental hygiene. Since the demand for consultants is very small, it would not warrant such developments in more than two or three universities. If we attempt to develop more than we need or in situations where the resources are not adequate, we shall defeat our own purposes. No university can afford to continue to offer highly specialized programs for one or two students. This *has* happened—with dire results. Since the N.O.P.H.N. is in a position to see the nation-wide picture, with the assistance of the U. S. Public Health Service and the specialists in the various fields, it is locating the spots in the country where there are adequate or potential resources, and will be glad to share this information with universities wishing assistance.

SUMMARY

Our needs fall into four areas: programs of study in public health nursing, in-service education programs, basic nursing curricula, and advanced nursing

curricula. If substantial progress is to be made, public health nurses must take an active part in improving education in all four areas. The amount and the way in which we assist will be different, depending on our own jobs, committee work, etc. Of the four areas, the needs in the advanced curricula are most imperative at this time because of the war, but also for the very fundamental reason that the experts may be likened to tap roots which furnish the nourishment for the growth of the profession. Without experts, our professional growth will be stunted; without nurses prepared to teach, the progress in the three other areas will be definitely limited. If nursing is to be an art, we must have master nurses.

While admitting that we are not prepared to meet the present pressing demands for experts, this need has been considered, and plans are under way to meet it. The National League of Nursing Education, the Association of Collegiate Schools of Nursing, and the National Organization for Public Health Nursing are working jointly through organized channels, as evidenced by the report of Miss Fitzsimmons' committee, in relation to the need in the basic curricula, and, in relation to the need in the advanced curricula, the report of the N.L.N.E. Committee on Postgraduate Courses and the work of the N.O.P.H.N. group under Miss Houlton's and Miss Gilbert's expert guidance.

The Education Committee of the National Organization for Public Health Nursing and its subcommittees were moving purposefully in this direction before the war, but the war has sharpened our awareness and imposed on us a compunction to move faster. The need for experts in the various fields, and plans to meet these needs, are a part of our present as well as our post-war planning. A good beginning has been made in planning the prepara-

tion of the psychiatric nursing consultant and the mental hygiene consultant in public health nursing, but it is only a beginning. To paraphrase Elbert Hubbard—The world is moving so fast nowadays that the profession which says something can't be done is generally interrupted by some other profession doing it.

No one has a greater opportunity to assist the people of the country to attain good mental health than the public health nurse. Her contribution is dependent, however, on what we as public health nurses do *today*, individually and

collectively, to make it possible. Next year may be too late!

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National Institute of Governmental Purchasing Organized

The National Institute of Governmental Purchasing, Inc., has been organized with offices at 730 Jackson Place, N.W., Washington, D. C. The Institute, incorporated under the laws of the State of Wisconsin, is a non-profit, educational and technical organization of governmental buying agencies in the United States and Canada. It is devoted to the further development and professionalization of the field of governmental buying. Among its objects are to improve the organization and administration of governmental buying through:

Regular interchange of information and

experience among governmental buying agencies

Consultation with legislative bodies, departments of government and others on legislation and problems affecting governmental purchasing

Development and promotion of simplified standards and specifications for governmental buying

Supplying information regarding uniform laws and procedures and for the disposition of surplus or obsolete supplies of materials and equipment

Research in the organization and administration of centralized governmental buying agencies

Albert H. Hall is the Executive Director.

Effect of the Increased Birth Rate on Maternal and Child Health Problems

JOHN M. SAUNDERS, M.D., F.A.P.H.A.

*Regional Medical Consultant, Children's Bureau, U. S. Department of Labor,
Washington, D. C.*

THE provisional birth rate for 1943 was 21.9 live births per 1,000 estimated population, a rate higher than for any year since 1924, when it was 22.2. The 1944 birth rate will probably be somewhat lower than that for 1943 although an anticipated increase in the birth rate may come during the latter part of 1944. If this happens, the need for maternity care will be as great as for infant and child care. Although the decline in the maternal and infant mortality rates is particularly encouraging to all persons interested in public health, the war has made more acute the problem of providing adequate health services for mothers and children. Even though the 1942 infant and maternal death rates were the lowest on record, some individual states and communities still have rates above the national average. Continued effort on the part of health workers is required to reduce these rates as well as to maintain the low rates for some areas and eventually to reduce them still further.

To health departments war has brought a multiplicity of problems. This is the time when, of all others, there should be an increase in health department personnel, an expansion of existing services, and the addition of new activities. The situation is, how-

ever, quite the reverse. Instead of adding personnel, health departments have lost doctors and nurses to the demands of our armed forces. The withdrawal of practising physicians from civilian life has had its effect, since private practitioners customarily take part in health department clinics for maternity care and in medical supervision of well children. Administrators of these services have been forced to make adjustments and compromises. For example, if a child health conference has to be dropped because the physician has been called into the service, a substitute may be planned. The public health nurse may meet the mothers and children at the conference center at regular intervals to weigh and inspect the children and to discuss with each mother the particular health problems which her child presents. The nurse will refer to the physician's office only those cases selected for medical treatment.

Another expedient is the combining of prenatal medical conferences with health supervision of infants and preschool children at the same session. A further expedient is the so-called "nursing office session." (Under this arrangement the nurse has office hours at fixed times, and the public comes to her to discuss problems of family or child health. Group teaching of adults also has an important place in the war-time economy of personnel.)

Although the war has meant de-

* Presented before the Vital Statistics Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

creased and makeshift services in maternal and child health, the picture is not entirely devoid of bright spots. The most striking development in our wartime maternal and child health services is the emergency maternity and infant care program (for the wives and infants of men in the four lowest pay grades of the armed forces and the wives and infants of aviation cadets). Now all the 48 states, the District of Columbia, Alaska, Hawaii, and Puerto Rico are administering this program, which authorizes medical and hospital care for more than 40,000 women each month. It has been estimated that about 15 to 20 per cent of the 1944 births in the country will be paid for through the EMIC program.

Another bright spot is the fact that our national consciousness has been awakened to the significance of nutrition, which is one of the most important aspects of maternal and child health. Sound and practical information on nutrition is now widely disseminated. Nutritionists have an interested public with whom to work.

Although we are finding that the things we have been educated to are not all possible now, it is important that we do not change our standards of care but rather adjust them to the emergency situation. When the emergency is over, we can then go back to our previous methods without need of reeducation on this score and we can seek to improve them. With the increase in births during the war period there will be need for more adequate maternal and child health services and for more complete coverage of the country after the war.

A comprehensive program of maternal and child health services is far more fundamental and inclusive than a program for the reduction of infant and maternal mortality. A maternal and child health program is no longer considered a movement separate from

other health movements but has been incorporated as an integral part of organized health work on both state and local levels. Because it is recognized that the health of mothers and children depends so largely on social and economic factors involving the family as a unit and on the medical care, the educational facilities, and the control of sanitation provided within the community, the modern maternal and child health program should be planned and carried out as a coöperative program to which all community agencies serving the family contribute. Since the most effective media for carrying information on maternal and child health to the people of a community are the local health organizations and clinics, every local health department should provide adequate services for maternal and child health as part of its general health program.

Maternal and child health services should include:

1. Prenatal clinics and child health conferences conducted by qualified physicians with the aid of a public-health nurse
2. Home visiting by public health nurses for teaching the hygiene of maternal, infant, and child health and for instruction in bedside nursing care
3. Nurses' classes or conferences with mothers for educational or follow-up purposes
4. Medical care to maternity patients and to children in home or hospital

Emphasis should be placed on maintaining a high quality of maternal and child health services as a part of the general public health program.

As we are able to adjust maternal and child health programs to provide more adequate services and to meet the increased needs in the country as a result of the increased birth rate, we should make complete maternity care available for all mothers, and for all infants and children, preventive and curative medical services, including adequate control of communicable disease.

NOTE: Complete maternity care should provide care of the mother throughout pregnancy, including the services of a qualified physician, of a public health nurse, and of a dentist, together with nutrition service and social service when these are needed. Prenatal supervision by physicians aided by public health nurses assures the health of most women in their approach to a normal delivery. Care at the time of delivery by a qualified physician, aided by a nurse trained and experienced in delivery nursing care, should be available to all women. Hospital care, as needed, in an approved hospital provided with obstetric and pediatric consulting staff, and facilities for care of emergency or complicated cases are essential for complete maternity care.

A comprehensive child health program should include the supervision of the health and development of infants and children, with examinations at regular intervals throughout the period of growth by a qualified physician and public health nurse at home, in child health conferences, in schools, or in physicians' offices. Facilities should be available for medical care for sick children in home, clinic, office of a qualified physician, or in a hospital and for consulting service to all who need it.

The principles governing the organization of maternal and child health services are the same in cities as in rural areas. To achieve the health and well-

being of children will require expansion of full-time local public health services organized on a city, county, or district basis; construction and adequate support of health centers and hospitals as needed, especially in rural areas, and more effective use of existing medical services and facilities; more effective coördination of community public health and medical services conducted by various agencies; and postgraduate educational programs in obstetrics, pediatrics, and public health for physicians.

Since MCH directors are better prepared to plan health programs for mothers and children if they have available current, usable data for different geographic areas as well as data on trends in birth rates and maternal and infant mortality rates, it is important that state and local divisions of vital statistics be prepared to provide this data currently. This means that the state division of vital statistics and maternal and child health should work together closely in determining the needs of a program for mothers and children.

Hermann M. Biggs Memorial Lecture

The New York Academy of Medicine has announced that the Hermann M. Biggs Memorial Lecture, which is held annually at the Academy under the auspices of the Committee on Public Health Relations, will take place on the evening of Thursday, April 5. The speaker will be F. C. Bishopp, Ph.D.,

Assistant Chief in Charge of Research, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, Washington. The subject of the lecture will be "The Medical and Public Health Importance of the Insecticide DDT." The lecture is open to the general public.

Nutritional Problems That Arise in Large Scale Cookery*

C. M. McCAY, LIEUTENANT COMMANDER, H(S), USNR

*Naval Medical Research Institute, National Naval Medical Center,
Bethesda, Md.*

THE first man to appreciate the close interrelationship between the processing of food and its nutritive value was probably James Lind (1716-1794), the father of naval hygiene. His fascinating work upon scurvy which appeared in 1754 can still be read with great profit by nutrition students.¹

Lind's description of the naval ration of his day makes us wonder how men survived. Each man was allowed a pound of hard biscuit which was "baked without much fermentation." For "fresh provisions" each was issued one and a half pounds of wheat flour. This was made into a pudding with water and pickled suet. Since this suet did not keep well, they often substituted currants or raisins. Two other articles of the fresh provisions were ground oats made into a gruel and boiled peas.

There was also an allowance of butter and cheese. The latter was given to assist digestion, which undoubtedly needed assistance. Finally, each man received two pounds of salt beef and two of salt pork per week. Small amounts of salt fish and jerked beef were also issued on occasion.

The common practice in those early days was to tap the hard biscuit on the

table to jar out the large insects. The small ones were consumed.

The favorite beverage in the time of Lind was beer. The daily issue was one gallon per man per day. Some beer was made at sea by fermenting a mixture of molasses, spruce extract, malt and hops with yeast that had been air dried before the voyage started, according to Cutbush.² However, distilled liquors were usually issued at sea.

Lind's method for the prevention of scurvy consisted of "broths made of fresh meat with plenty of recent vegetables, otherwise roots and fruits." After Lind made his famous experiments which verified earlier tests of citrus juices as antiscorbutics, he prepared concentrates by the evaporation of citrus juices. These were protected from the oxidation by air through a layer of oil poured over the concentrate before he corked the bottles. He also made an antiscorbutic by rubbing orange juice with sugar. Lind even recognized the value of citrus rinds as antiscorbutics. He records the case of a man cured of scurvy by eating the rinds of lemons after the officers had squeezed out the juice for their punch.

Lind recognized that the potency of antiscorbutics was lost when plant ma-

* Presented before the Food and Nutrition Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

NOTE: The opinions and views set forth in this article are those of the writer and are not to be considered as reflecting the policies of the Navy Department

terials were dried. He was familiar with the attempts to treat scurvy with dried herbs shipped from Vienna to Hungary.

From the time of Lind, little progress was made in recognizing the interrelationship between cookery and the nutritive value of foods, until the modern era. Late in the past century, considerable study was given to the loss of minerals when vegetables were cooked in large volumes of water. However, even the nutrition texts written forty or fifty years ago, gave scant attention to these losses of iron and calcium.

The reports of nutrition studies made in the American Army during the first World War by Murlin³ and others seldom mention interrelationships between the preparation of food on a large scale and the nutritive value of the food served. Estimates were made of protein, fat, carbohydrates, and calories at many different camps by teams working under Dr. Murlin.

From a study of 427 Army messes they prepared the following table:

| | <i>Supplied</i> | <i>Wasted</i> | <i>Consumed</i> |
|-----------------------|-----------------|---------------|-----------------|
| Protein (Grams) | 131 | 9 | 122 |
| Fat (Grams) | 134 | 11 | 123 |
| Carbohydrates (Grams) | 516 | 31 | 485 |
| Calories | 3,899 | 266 | 3,633 |

Primary emphasis was placed upon the selection of foods to yield adequate amounts of the proximate principles and the prevention of waste.

However, a beginning was made in Great Britain during the last war in appreciating the close interrelationship between the processing or cooking of food and the value of this food as a source of vitamins.

Horrocks¹ has carefully reviewed the work in England. In the studies of Chick and others, preliminary evidence indicated that meat lost much of its anti-neuritic power when canned. Today we read many reports about the decrease of thiamin in the canning of

meat. The yeast shipped during World War I to the East from England was dried carefully because tests on wheat germ had indicated a slow destruction of its water soluble vitamin by heat.

Most attention was given to the destruction of vitamin C or the "anti-scorbutic vitamin" as it was called during the past war. The dried foods of that period were condemned because this vitamin had been destroyed. Today we realize that even dried potatoes may afford a considerable amount of vitamin C, if dried correctly.

The British during the past war recognized that cabbage lost about half of its vitamin C when boiled for an hour. They also appreciated that fruit juices had to be processed carefully. Sulfur dioxide was used at a level of 0.06 per cent for the preservation of Sicilian lemon juice near the close of the war. The extensive use of sulfur dioxide at the present time for the preservation of vitamin C is a common practice.

During the first war the creation of vitamin C in the course of the sprouting of seeds was recognized as a method for supplying this vitamin in the field. A number of studies were made in England during World War I to preserve the vitamin in these sprouts, as well as other foods such as cabbage, by boiling these products in solutions of 0.5 per cent citric acid. This concentration of the acid seemed to afford no protection to the vitamin C. Cooked, sprouted lentils were found to afford about the same protection against scurvy as cooked potatoes.

Today we have become very aware of the destruction of vitamin C, thiamin, and carotene when food products are heated, especially in air. Many laboratories are engaged in studying these losses and those which occur from solution of vitamins in the cooking waters.

As a result of these studies, we must

expect many changes in the design of cooking equipment during the coming years. This will take place in both the home and in kitchens where food is prepared on a large scale.

As a nation we are undoubtedly in the midst of developing new tastes. Many of us are in a stage of transition from old tastes for vegetables that were boiled for long periods to new ones in which the cooking process employs little water and depends upon steaming for a few minutes.

As a nation we are also undergoing a tremendous change in our food habits. About 11 million men are learning to eat a well balanced diet in the armed forces. In another decade or two we can estimate that these men will be heads of families that will include 40 to 50 million souls. The changed food habits acquired during service will undoubtedly be reflected in the habits of these families. The national health picture should ultimately rise to new levels if our faith in the effectiveness of good nutrition is justified. These facts were driven home to me very forcibly some months ago while observing 5,000 colored recruits passing down the cafeteria lines for their evening meal. Milk was the beverage. Not a man refused milk. One can only wonder about the future expansion of the dairy industry.

With this general introduction it may be well to consider some of the specific problems that have arisen in recent years as a result of large scale cooking and feeding operations. All of our observations have been made in training stations of the Navy or Marines during the past year.

Since all observations recorded in this report were made in the course of the work of the Mobile Nutrition Unit, a brief description of this unit may be worth while. Late in the autumn of 1943 the Naval Medical Research Institute purchased a small truck for use

in field studies. This was equipped with a freezing cabinet and an assortment of scales, Waring blenders, food choppers, and glassware.

Studies to determine the nutritive value of foods served in specific mess halls are made by setting up a work table in the galley. Food samples representing a typical meal are weighed, converted to a slurry, and frozen in cellophane bags for preservation. The cellophane bags are those commonly used in the home freezing of foods. This method of sampling and preservation of food had permitted real advance over the work during the last war when samples were ground in a meat chopper, preserved in formalin, and shipped to laboratories in fruit jars.

Likewise samples of garbage are ground and frozen until ready for analysis in the laboratory.

The weight of food served to a typical man in a large mess hall is determined by weighing one set of full pans of food as they are taken to the steam table. The number of men served from each pan of food is then counted. The number of men passing down the cafeteria line is also computed with the help of multicounters. From these counts one can estimate the weight of items served as a typical meal.

A large mess hall in a naval station may feed several thousand men. The largest we have studied fed about 7,500 each meal. In such operations the number of men employed in the galley amounts to about 5 per cent of the total. In other words, one man in twenty from each unit is employed in feeding the other nineteen.

Men are usually fed in several lines in cafeteria style, although some marines are still served at tables in family style. The relative merits of these two methods of feeding are still debated. Men seated at a table undoubtedly get all the food they wish. On the other hand, they have an opportunity of

selecting a poor diet. If a man insists upon eating meat, potatoes, dessert, and coffee he has an unusual opportunity at a table, especially if he is husky or crafty. This was clearly shown in one study made comparing the two methods of serving food. At the cafeteria every man is offered a balanced meal and usually takes it. He may throw some items away but as a rule tends to eat what has been served.

The problem of providing adequate calories at a cafeteria involves the differences in the needs of men served. Lusk³ estimates that a man weighing 132 lbs. and doing moderate work needs 2,960 calories, while a man weighing 189 lbs. and doing similar work needs 3,500. In a commercial cafeteria the large man can take food to supply the additional 540 calories.

In a large mess hall the lines must move rapidly. The servings tend to be uniform. About 3,300 calories are served to each man per day. This leaves the small man about 300 calories to throw away and the large one is short a couple of hundred calories.

Usually men can pass through the lines again for more food but do not wish to do so. Furthermore, an eagle eye is usually maintained for the man who throws away his vegetables and comes through for pie and meat. Bread is usually made very accessible and men can have as many slices as they wish. The typical man eats a little less than two slices of bread per meal. However, some men eat five or six slices. Some of the marine messes keep jelly, jam, or peanut butter on the table to encourage men to eat bread for additional calories. Some mess officers object to this, however, because men stick their own knives and spoons into the jars. At least bread provides a means for compensating calories. Some waste is inevitable in feeding large numbers of men rapidly because of this need to allow the larger men enough food.

In a large mess hall studied recently we found the typical man threw away about 110 gm. of dry food per day. This included about 20 gm. of protein, 35 gm. of fat, and 49 of carbohydrates. In compensation for this the man bought about 400 calories of food with his own money at the Ship's Service store. This purchase included about 19 gm. of fat and 9 of protein. In other words, the exchange was in favor of carbohydrates. Inasmuch as these agencies such as Ship's Service provide about one-eighth of the man's calories, they occupy a very important and often unrecognized place in the feeding of men in the armed services.

Much too little attention has been given to the nutritive value of the products sold by these outside agencies. Since candy bars account for about 40 per cent of the food eaten outside the mess hall, the importance of having candy of high nutritive value is evident. Inasmuch as there must be a small minority of men who deviate far from the average and buy heavily from outside food, it is especially important that the products they buy have a high nutritive value. For these reasons we cannot have candy bars that are too high in nutritive value. More milk, more nuts, more special products such as brewer's yeast, wheat germ and corn germ should find their way into the candy bars for the service men.

The estimated purchase of candy bars for the Army during the first quarter of the year was given as 300,000,000, or about a 100,000,000 per month.⁵ We have tended to underestimate the importance of these bars in the feeding of men.

Other items of less importance in the feeding of men outside the mess halls can be evaluated roughly on the basis of calories contributed to the diet of each man daily. The following are estimated values in calories taken from one station during a cold spring month:

candy, 161; nuts, 47; cookies, dough-nuts, and cake, 74; ice cream, 45; milk, 31; and soft drinks, 34. These values are very similar to those published in studies of Army camps during the last war.

COOKERY AND GARBAGE

Both cookery and food habits as well as the appetites of the men influence the amount of food that is discarded into the garbage. Thus large numbers of men are not accustomed to eating the fats from meat. If fat meats such as pork chops are cooked with a considerable weight of fat attached this tends to be discarded when men are only subject to moderate exercise. This is illustrated from a study made recently and summarized in the table as follows:

| | <i>Amt.
Served</i> | <i>Bone</i> | <i>Fat (43%)</i> |
|--------------------|------------------------|-------------|------------------|
| <i>Meat Served</i> | <i>gm.</i> | <i>gm.</i> | <i>gm.</i> |
| Pork chops | 121 | 34 | 23 |
| Pork loin | 192 | 23 | 47 |

Possibly ways of cooking could be found that would make this fat more palatable. The inclusion of pickles or mustard in the menu might also prevent the throwing of so much of this fat into the garbage.

A study of the vitamins that are

thrown into the garbage day after day indicates the wastage that results from a combination of poor food habits and unsuitable cookery. In Table 1 are summarized the results of a 10 day study in a mess hall that was very well managed. On the two days when liver was offered (May 5 and 9) the level of vitamins in the garbage-can increased markedly. Likewise on May 11, when the steak was poorly cooked, large amounts of water soluble vitamins found their way into the garbage pail rather than into the stomachs of the men.

From these examples to show the close interplay between the quality of the cookery and the values that men receive from food, it is evident that cookery determines in part the fraction of the food served that will be thrown into the garbage pail. This loss of food in the garbage in turn is compensated by eating outside the mess hall. As a rule the food eaten outside tends to be richer in sugar and carbohydrates with a lower level of vitamins, minerals, and protein. This substitution of food from Ship's Service for food from the galley tends to lead to a lower level of nutrition. It need not do so, however. In time these outside feeding activities may be so regulated that they will in-

TABLE 1
Comparison of Vitamin Intake with Vitamin Losses in Garbage per Man per Day

| <i>Date of
Sample</i> | <i>Weight of Wet
Garbage per
Man per Day
(gm.)</i> | <i>Thiamin</i> | | <i>Riboflavin</i> | | <i>Niacin</i> | |
|---------------------------|--|---|---|---|---|---|---|
| | | <i>Average
Daily
Served
(mg.)</i> | <i>Average
Daily
Loss
(mg.)</i> | <i>Average
Daily
Served
(mg.)</i> | <i>Average
Daily
Loss
(mg.)</i> | <i>Average
Daily
Served
(mg.)</i> | <i>Average
Daily
Loss
(mg.)</i> |
| May 3 | 328 | 2.2 | 0.4 | 2.8 | 0.8 | 28 | 8 |
| " 4 | 318 | 2.5 | 0.4 | 4.9 | 0.3 | 34 | 7 |
| " 5 (Liver) | 360 | 1.4 | 0.4 | 7.9 | 1.6 | 40 | 16 |
| " 6 | 322 | 1.3 | 0.3 | 3.7 | 0.3 | 22 | 7 |
| " 7 | 306 | 1.4 | 0.4 | 3.7 | 0.4 | 37 | 8 |
| " 8 | 258 | 1.5 | 0.2 | 3.4 | 0.4 | 20 | 6 |
| " 9 (Liver) | 352 | 2.5 | 0.6 | 5.8 | 3.0 | 27 | 12 |
| " 10 | 346 | 2.5 | 0.4 | 3.9 | 0.6 | 23 | 8 |
| " 11 | 189 | 1.8 | 0.2 | 4.2 | 1.8 | 25 | 12 |
| " 12 | 291 | 0.9 | 0.2 | 2.8 | 0.3 | 15 | 7 |

N.B. The "intake" values represent "X Prime" Galley, whereas the "loss" values from the garbage represent "I" Galley. However, the menus ran close for both galleys, and the quantitative intake approximately the same.

sure food of value equal to that offered at the mess hall.

INCREASING VITAMINS WITH YEAST

In modern times much interest has centered upon the inclusion of dry brewer's yeast in diets known to be low in water soluble vitamins. This is not done in the armed services because rations are high in milk, eggs, and meat. Adequate amounts of water soluble vitamins are provided.

The best use of dry brewer's yeast is probably for the feeding of industrial workers. From our studies at the Brooklyn Navy Yard,⁶ we are convinced that conservative additions of yeast can be made to many cooked dishes without creating an unfavorable flavor. For some years we have believed that doughnuts made with an eighth of the flour replaced by yeast would assist substantially in giving those thousands who have only doughnuts and coffee for breakfast a reasonable addition of water soluble vitamins.

New recipes for large scale cookery are now available from the Home Economics Department at Cornell University. Some of the coöperative stores are now selling yeast packaged like sugar in order that the housewife may use it in her cookery.

Excellent progress has been made in recovering more yeast from the brewing industries but its use for industrial feeding is probably still very slight. Considerable amounts are being shipped to Russia.

SOME SPECIAL PROBLEMS OF LARGE SCALE COOKERY

Special problems arise in feeding men in mess halls that accommodate 5,000 individuals. No economical machine for producing hot cakes at the rate desired is available. Fried eggs are leathery when cooked in advance for this many men. Grapefruit cut in halves is hardly suitable for eating with

blunt spoons. Salads prepared in advance by fine chopping lose much of their vitamin C.⁷

One station feeding 35,000 men is conserving vitamin C by serving a "raw bar" once each day. This consists of an iced tray of raw foods such as turnips, carrots, lettuce, radishes, celery, and scallions.

JAMS, JELLIES, AND BREAD SPREADS

The use of bread spreads to encourage the consumption of bread to supply extra calories for those men who need them at mealtimes has been discussed earlier.

Inasmuch as jams, jellies, and marmalades originate from fruits, they should carry substantial amounts of ascorbic acid. All of us have read of the black currant jellies of England. Nevertheless, the tables of the National Research Council only assume a value of one milligram of ascorbic acid per 100 grams for assorted jams and preserves. These tables are more generous with orange marmalade and give it a value of 8 milligrams.

In the studies of Reva Lincoln,⁸ it was found that commercial marmalades varied from 4 to 11 mg. per 100 gm. Marmalades could be prepared that contained 65 to 85 per cent of the ascorbic acid present originally in the rinds and juice. In other words, marmalade could be prepared with slight changes in methods, so that the marmalade would have 27 to 29 mg. of ascorbic acid per 100 gm. They would prove a boon to our armed services at the present time and a permanent asset of the general public in peacetime.

Estimates have been made that Americans consume over a million pounds of vitamin C per year in the form of citrus fruits. Certainly an equal amount must be thrown away in the peeling. This represents one of the challenges to better cookery.

Far more citrus peel could probably

be utilized in marmalades, candies, and cakes. Miss Lincoln records the feeding of rats upon levels of dried citrus peel up to the very high level in which the peel constituted 30 per cent of the diet. No apparent injuries resulted, although rats fed the highest level grew more slowly and ate less food when first offered the diet. There is no reason to anticipate any bad effects from more extensive use of citrus rind in American food products.

Furthermore, far better combinations using tomatoes in bread spreads can be made than are now available commercially. This again affords an excellent method by which more ascorbic acid could be introduced into the diet if the large scale cookery used in the preparation of the spreads were sufficiently guarded. The guava paste to be used in this year's bread spreads is said to be much richer in vitamin C than that available in the past. If this be true, it will represent care in the large scale cookery employed in the preparation of this product.

The preparation of marmalades and jams is not an accepted procedure in large scale cookery in mess galleys of the Navy, although bakers are accustomed to making their own pie fillings. In the interests of better nutrition, the utilization of citrus peel, and providing men with adequate amounts of vitamin C, it is possible that more attention should be given to the manufacture of spreads for bread within each galley.

BREAD

A typical man in the Navy eats about two slices of bread per meal. Expressed in percentage of the day's nutrients this bread provides the following: calories, 13; protein, 11; fat, 3; calcium, 4; thiamin, 21; riboflavin, 12; and niacin, 19.

In 1808, the American Navy allowed 18 oz. of bread per man per day while the French Navy of that time issued

1½ to 2 lb. daily. The modern naval allowance in the United States, based upon consumption about 50 years ago, is still 12 oz. although it is unlikely that any supply officer is using this amount. Today men consume about half this amount or 6 oz. daily.

Two questions are often debated in regard to the bread fed men in the armed services. The first concerns attempts to improve the nutritive value of bread by changing the standard recipe. The second relates to the use of a variety of breads.

Two important improvements have been made in the bread now in use, namely, the change to enriched flour and the inclusion of 2 per cent of dry skim milk. In Murlin's⁹ excellent review of the composition of Army rations since the Revolutionary War, no estimate is given of the extent to which milk may have been incorporated into bread. It was probably slight, however. As nearly as we can estimate from the amount of bread baked and dry skim milk issued in the Navy during the past year, the maximum amount of milk used could not have exceeded 2 per cent. As supplies become available this level of milk should equal 6 per cent of the weight of flour.

Some consideration has been given to additional improvements in bread by the incorporation of 5 to 10 per cent of soy flour. The chief purpose of such a change would be to improve the quality of the bread proteins. Thus far, such a change has been opposed chiefly on the basis that there is no need for better quality of protein in bread, inasmuch as liberal amounts of milk, eggs, and meat are allowed in the ration. Furthermore there is considerable opposition to including soy flour in available supplies because of the common mistaken belief that such flour becomes rancid easily in the same way that whole wheat flour does.

However, even high fat soy flour con-

taining about 20 per cent of lipids does not become rancid readily when stored for long periods in a warm room. Thus it differs surprisingly from whole wheat flour. Such an expensive source of protein as meat could probably be reduced considerably in the ration if soy flour were incorporated into the bread and men were served sweet spreads that would stimulate heavier bread consumption.

The problem of the use of a variety of breads is often debated. Everyone assumes that a variety of cakes and pies is essential. Many oppose variety in breads because they claim men want only white bread. Nevertheless no good evidence has been presented that men wish only one kind of bread.

From observations made at the hospital cafeteria of the National Naval Medical Center, Bethesda, Md., it is evident that men will eat a variety of breads if given some choice. In Table 2 are given the fraction of slices of different kinds of commercial breads selected by men with a choice of three.

In large galleys, the deep fat frying of an item for lunch such as chicken or fish may start at 7 A. M. or earlier. The operation may be completed a couple of hours before the first serving at 11:30. The fried product is usually allowed to cool and then reheated in the oven to steam the foodstuff.

Little is known about the destruction of vitamins when meats are treated in this manner. At the same time fats are probably changing both in the cooking bath and on the surface of the cooked meat. Cooks have no good means of telling when the fat is exhausted, except that it may darken and lose its viscosity.

Extensive studies need to be made by the biochemist to determine what changes are taking place in these fats inside the bath and on the surface of the cooked products. Chemical tests are inadequate today. Feeding tests with animals need to be run parallel with chemical research. Simple tests need to be devised that will permit the maximum use of frying fats without the

TABLE 2
Average Bread Selected in Fractions of Slices

| <i>Meal</i> | <i>Morning</i> | | <i>Noon</i> | | <i>Evening</i> | |
|-------------------|----------------|-----------------|----------------|-----------------|----------------|-----------------|
| | <i>Officer</i> | <i>Enlisted</i> | <i>Officer</i> | <i>Enlisted</i> | <i>Officer</i> | <i>Enlisted</i> |
| White | 19 | 19 | 0.19 | 0.70 | 0.19 | 0.73 |
| Whole Wheat (50%) | (none offered) | | 0.46 | 0.28 | 0.26 | 0.33 |
| Rye (30%) | (none offered) | | 0.70 | 0.56 | 0.69 | 0.75 |

Inasmuch as the officers eating at this mess are mostly physicians, this may account for the lower consumption of white bread by them and the greater use of white bread by enlisted men.

FAT IN COOKERY

The average man ingests about 110 gm. of fat daily in a diet providing about 3,000 calories. Such fats as those from butter and milk seem universally liked and well tolerated by the body. The questions arise concerning the fats used in deep fat frying and their utilization.

development of products that are injurious to the body.

BEVERAGES

The contributions of beverages to the nutrition of men is probably greater at the present time than in any earlier period because of the increased use of milk. When the ration law was passed for the Navy in 1906, it called for 1/16 quart of fresh milk or 1 oz. of evaporated milk. Today at the better naval stations, men may be served a bowl of milk at breakfast and a large cup at the evening meal.

At a large station studied in late winter it was found that the typical man was getting 1 lb. of fresh milk per day. From this beverage alone he was obtaining 9 per cent of his calories, 13 per cent of his protein, 15 per cent of his fat, 27 per cent of his calcium, 11 per cent of his thiamin, 60 per cent of his riboflavin, and 3 per cent of his niacin each day. Furthermore this milk used as a beverage tends to displace coffee. It negates the old assertion that men must be served coffee at each of the three meals.

There is undoubtedly a fertile field for better beverages that can be prepared in the ordinary mess galley. Even such products as beer may ultimately fall within the domain of the cook. As one observes a huge cargo of beer being loaded for shipment overseas, he wonders that we have striven, as a nation, to take the water from vegetables which usually carry 80 to 90 per cent. We then carefully bottle a product like beer that contains about 90 per cent water, pack these bottles carefully in sawdust and ship them.

The prohibition era must have provided an adequate background so that cooks could provide a satisfactory beer from dry ingredients if provided with equipment and supplies. Furthermore methods need to be devised so that the yeast of beer can be worked back into the beverage to increase its nutritive value.

Bouillon has proved of great interest in recent months because of British studies indicating that it may contain a considerable fraction of the water soluble vitamins if it is prepared from meat.¹⁰

With the constant appearance of new beverages it seems possible that men may drink even more of their nutrients than they do at present.

SUMMARY

Some of the problems that arise in

nutrition as a result of large scale cookery have been described. These can be summarized briefly:

1. The ancient problem of the preservation of ascorbic acid has been partly solved, (a) by improved drying methods and the use of more sulfur dioxide in preservation of dried products and fruits, (b) by shortening the time of cooking vegetables, (c) by preparing salads from vegetables and fruits cut in large chunks rather than shreds.

2. Ascorbic acid can be preserved in marmalades and other bread spreads but is usually destroyed in the cookery.

3. Marmalades might be profitably prepared in mess galleys (a) to utilize the large amounts of ascorbic acid in citrus peelings; (b) to increase the consumption of bread; (c) to improve the attractiveness of meals; (d) partly to satisfy the longing of men for sugar.

4. Certain products await the development of simpler machinery for their preparation. Examples of these are machines that can turn out fifteen or twenty thousand hot cakes per hour, and those that will automatically prepare grapefruit so that men can eat them with blunt spoons.

5. In spite of the decline in the use of bread during the past fifty years, it is still an important fraction of the total food. More bread might be consumed if more varieties were used and more attractive spreads were provided. The quality of bread has been improved by the use of enriched flour and dry skim milk. The quality of bread protein could be improved still further by the incorporation of soy flour.

6. Inasmuch as men tend to eat about one-eighth of their calories outside the regular mess hall, such products as candy bars and pastries that are served in such operations need to be greatly improved.

7. Foods that are poorly cooked or that are served without some attempt to educate men to eat them may lead to severe wastage of vitamins.

8. Much attention needs to be given to food fats to prevent excess wastage. Studies of the deterioration of fats used in deep fat frying are needed. Simple tests are needed to guide cooks in regard to the proper time for discarding cooking fats.

9. Beverages have been assuming a position of increasing importance in large scale feeding operations. This reflects, in part, the increased consumption of milk by the typical American. Beverages are simple to prepare, quickly consumed, and leave little waste. Methods need to be devised for

shipping beer in a dehydrated form and for working the yeast back into beer to increase its vitamin content. Newer interest in bouillon has arisen as a result of British studies indicating that water soluble vitamins from meat are found in this product.

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ACKNOWLEDGMENT: The author was assisted in these studies by Mary B. Pine, F. H. Davis, R. A. Gortner, Jr., Gladys E. Haugen, June H. Sullivan, Laura J. Bernatowicz and Bessie L. Hudson.

Health Center Contest Awards

Modern Hospital has announced that its contest for the design of community medical centers housing a hospital, with headquarters for the local health department and offices for the local physicians and dentists, has been completed. Among the winners were Leonard Greenburg, M.D., of New

York and Miss Roslyn Ittelson, designer, also of New York, who won second prizes of \$750 in the health center competition. Dr. Greenburg is Medical Director of the Industrial Hygiene program of the New York State Department of Labor.

A Proposed Typhoid Immunogenic Unit for Evaluation of Antityphoid Immunizing Substances

MAJOR GEORGE F. LUIPPOLD

Sanitary Corps, Army Medical School, Washington, D. C.

WITH the introduction of new types of bacterial vaccines, immunizing polysaccharides, "purified antigens," and other preparations of the typhoid bacillus intended for immunization against typhoid fever, there is an increasing need for a standard unit of immunogenic potency with which the effectiveness of these substances may be expressed.

It is meaningless to assert that any one product is a certain number of times more effective than any other, particularly when the two substances have not been titrated for potency under a given set of conditions; and, even when substances have been titrated simultaneously, the validity of a mathematical ratio of effectiveness is open to question.

A much more useful and significant evaluation of the effectiveness of an immunogenic substance would be expressed in units of immunogenicity per unit of dry weight (or per unit of volume) of the product, determined under standard conditions with standardized materials. The problem resolves itself into defining such a unit of immunogenicity and describing materials and methods employed in its determination.

DEFINITION OF THE UNIT

The proposed unit is defined as follows: *A Typhoid Immunogenic Unit*

(TIU) is that amount of a substance which will protect all of four 16-18 gram mice of a specified breed, in a twice-repeated test, against 50,000 virulent typhoid organisms of a strain of *Eberthella typhosa* having an m.l.d. of from 50 to 500 organisms in 0.5 ml. of 5 per cent mucin.

MATERIALS

It need not be emphasized that all materials employed in determinations of the TIU should be standardized to the highest degree practicable. These materials have been listed below, with brief remarks concerning their standardization.

It should be added here that the principle of this determination is based on the behavior of an unknown substance under standard conditions, rather than the comparison of an unknown with a standard substance. It will be understood by all familiar with this work that any material selected as an "antityphoid standard" would only introduce another variable; a reference point has therefore been included in the text for the purpose of orienting the worker with his materials and technique.

Test Animal—It is proposed that either Swiss mice or C-57 black mice be used as the experimental animal. Black mice derived from strain C-57 as supplied by the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me.,

are also satisfactory. Individual mice should weigh between 16 and 18 gm. at the time they are used, having acquired this weight on average weaning and adult diets. Sex is immaterial.

Test Organism—The challenging organism may be any highly virulent strain of *E. typhosa*. This implies a Vi strain of the typhoid bacillus which, as a 12 hour growth on infusion agar and suspended in 5 per cent mucin prepared as described below, will kill the above specified test animal in a dose of from 50 to 500 organisms contained in 0.5 ml. amounts of the mucin suspension.

Mucin Suspension—This vehicle for the test organism should be a 5 per cent suspension of the granular gastric hog mucin supplied by Wilson Laboratories, Chicago, Ill., identified by the manufacturer as "Type 1701-W." The suspension should be sterilized fractionally, strained only through gauze, and adjusted in its reaction to pH 7.2. Details of preparation have been discussed elsewhere.¹

Immunogenic Material—The immunizing substance should be either a dried product, or a dispersion of the material of known strength in water or in physiological saline. In later determinations of its potency, preservatives should have been added and the preserved dispersions kept at 5° C., 25° C., and 37.5° C. in order to determine the effect of the preservatives on immunogenicity at various temperatures over prolonged periods of time—that is, 6 months to 1 year. Such a determination is thought to be of utmost importance before a substance is recommended for general immunization, since standards of dispensing biologicals for general use demand the addition of a preservative for the maintenance of a sterile product.

TEST FOR IMMUNOGENICITY

If the immunogenic material to be

titrated is in the form of a dry solid, a weighed amount is first dispersed in a measured volume of distilled water or physiological saline. Serial 1 to 10 dilutions of the dispersions are then prepared in physiological saline to a point beyond the expectation of protection.

A preliminary exploratory titration is recommended before the actual test is made, by omitting alternate dilutions at the time the mice are injected, in order to orient the substance with a minimum of labor and materials. If the immunogen is already in the form of a solution or dispersion, it is treated in the same manner as the dispersion, described above.

Immunization of Test Animals—Individuals of respective groups of four mice each are inoculated intraperitoneally with 0.5 ml. amounts of each dilution. Sixteen mice from the same lot should be set aside for controls on the virulence of the test organism.

Test for Immunity—Seven days after immunization of mice, all animals that received the immunogen are inoculated intraperitoneally with 50,000 organisms of the challenging culture contained in 0.5 ml. of 5 per cent mucin. The normal control animals set aside at the beginning of the experiment are divided into four groups, the individuals of each group being inoculated with 5,000, 500, 50, and 5 organisms respectively. The latter inocula should be prepared by making serial 1 to 10 dilutions of the test dose material (50,000 organisms per 0.5 ml.) employed for determining immunity of the animals that received the immunogenic substance, and the estimated numbers of organisms should be contained in 0.5 ml. of 5 per cent mucin. Deaths among all mice are recorded during a 72 hour observation period, and debited against respective dilutions or, in reference to the controls, against respective doses of the challenging organism.

ENVIRONMENTAL FACTOR

Temperature of Animal Room—The effect of temperature on the death rate of infected mice is well known. Appreciably divergent results may be obtained with identical materials by simply subjecting the mice to widely different temperatures. Eighty degrees F. seems to be an ideal temperature for consistent results, and our experience indicates that the absolute minimum and maximum temperatures should be 70° F. and 90° F. respectively.

SELECTION OF TYPHOID IMMUNOGENIC UNIT

The smallest dose of immunogen that protected all four mice (1 TIU) is recorded along with the smallest dose of test organisms that killed all normal control animals (1 m.l.d.). Under ordinary circumstances, the m.l.d. will fall between 50 and 500 organisms. There will be exceptions to this outcome, of course; as mentioned above under environmental conditions of test animals, the two extremes of a reliable temperature range (70° F. and 90° F.) result in a variable m.l.d. of the test organism, the higher temperatures rendering the mouse more susceptible to the bacterium and aiding smaller numbers of the latter to destroy the host. Therefore, if the m.l.d. of the test organism should prove

to be between 5 and 50 organisms (instead of the "standard" arbitrarily set at 50 to 500), correction should be made in favor of the immunogenic substance by dividing by 10 the amount required to protect all mice against 50,000 organisms. Conversely, if the m.l.d. should fall between 500 and 5,000 organisms, the dose of immunogen required to protect all mice against 50,000 organisms should be multiplied by 10 in order to ascertain the unit of potency. To illustrate these corrections for variations in the m.l.d., the following examples are given (see Tables A, B, and C).

This result needs little comment. With an m.l.d. ranging between 50 and 500 organisms, the Typhoid Immunogenic Unit is contained in 0.001 mg., and the material is considered as having 1,000 TIU per mg.

In this instance, 0.001 mg. of the immunogenic substance protected all mice against 50,000 organisms, but the m.l.d. of the test organism fell between 500 and 5,000 organisms; therefore, the Typhoid Immunogenic Unit is 10 times 0.001 mg., or 0.01 mg. The immunogenicity of this substance would then be expressed as 100 TIU/mg.

A dose of 0.01 mg. of the immunogen was required to protect all mice against 50,000 organisms. Since the m.l.d. of

A. *Temperature 80° F. (Ideal)*

| <i>Amount of Immunogenic Substance Injected per Mouse</i> | | <i>Results of Injecting 50,000 Organisms 7 Days After Administration of the Amounts of Immunogenic Substance Listed in Column on Left</i> | |
|---|-------|---|-----------------|
| <i>(Mg.)</i> | | <i>(No. of Deaths/No. of Mice)</i> | |
| 0.1 | | 0/4 | |
| 0.01 | | 0/4 | |
| 0.001 ... (equals 1 TIU)..... | | 0/4 | |
| 0.0001 | | 3/4 | |
| 0.00001 | | 4/4 | |
| | | 5 organisms | 0/4 |
| Normal Control Animals: | 50 | " | 1/4 |
| | 500 | " | 4/4 |
| | 5 000 | " | 4/4 |
| | | | } equals m.l.d. |

B. Temperature 70° F. (Cool)

| <i>Amount of Immunogenic
Substance Injected per
Mouse</i> | | <i>Results of Injecting 50,000 Organisms
7 Days After Administration of the
Amounts of Immunogenic Substance
Listed in Column on Left</i> | |
|---|-----------------------|---|-----|
| <i>(Mg.)</i> | | <i>(No. of Deaths/No. of Mice)</i> | |
| 0.1 | | 0/4 | |
| 0.01 | ...(equals 1 TIU).... | 0/4 | |
| 0.001 | | 0/4 | |
| 0.0001 | | 2/4 | |
| 0.00001 | | 3/4 | |
| Normal Control Animals: | | 5 organisms | 0/4 |
| | | 50 " | 0/4 |
| | | 500 " | 3/4 |
| | | 5,000 " | 4/4 |

} equals m.l.d.

C. Temperature 90° F. (Very warm)

| <i>Amount of Immunogenic
Substance Injected per
Mouse</i> | | <i>Results of Injecting 50,000 Organisms
7 Days After Administration of the
Amounts of Immunogenic Substance
Listed in Column on Left</i> | |
|---|-------------------------|---|-----|
| <i>(Mg.)</i> | | <i>(No. of Deaths/No. of Mice)</i> | |
| 0.1 | | 0/4 | |
| 0.01 | ...(equals 10 TIU)..... | 0/4 | |
| 0.001 | | 2/4 | |
| 0.0001 | | 4/4 | |
| 0.00001 | | 4/4 | |
| Normal Control Animals: | | 5 organisms | 1/4 |
| | | 50 " | 4/4 |
| | | 500 " | 4/4 |
| | | 5,000 " | 4/4 |

} equals m.l.d.

the test organism lies between 5 and 50 organisms, the Typhoid Immunogenic Unit is contained in one-tenth of 0.01 mg., or in 0.001 mg. (that is, 0.01 mg. equals 10 TIU) and the immunogenicity of this material would be expressed as 1,000 TIU/mg.

REFERENCE POINT

Monovalent typhoid vaccine, containing 1,000 million typhoid bacilli per ml., has been chosen to illustrate an actual determination of the TIU value and to provide a reference point for the purpose of orientation. The particular typhoid vaccine selected was the stock product of the Division of Biologic

Products of the Army Medical School, labeled "Lot No. 107," which had been refrigerated for 6 months prior to this titration.

Selection of the TIU value of typhoid vaccine from the following data is a simple matter. In each of the three instances, the m.l.d. of the test organism falls between 50 and 500 organisms, and 0.5 ml. amounts of the 1:100 dilution protected against the challenging dose of 50,000 organisms. This particular sample of typhoid vaccine, therefore, contains 200 TIU/ml.

As stated above, the vaccine contained 1,000 million typhoid bacilli per ml., and the weight of this number of or-

TABLE INDICATING TIU DETERMINATION OF MONOVALENT TYPHOID VACCINE

| <i>Dilutions of Vaccine,
0.5 ml. Amounts of
Which Were Admin-
istered to Individuals
of Respective Groups
of Mice</i> | <i>Result of Injecting 50,000 Organisms 7 Days After
Administration of the Amounts of Vaccine
Indicated in Column on Left
(No. of Deaths/No. of Mice)</i> | | |
|---|---|-------------------|-------------------|
| | <i>Test No. 1</i> | <i>Test No. 2</i> | <i>Test No. 3</i> |
| 1:10 | 0/4 | 0/4 | 0/4 |
| 1:100 | 0/4 | 0/4 | 0/4 |
| 1:1,000 | 2/4 | 3/4 | 3/4 |
| 1:10,000 | 4/4 | 4/4 | 4/4 |
| <i>Result of Injecting Normal Control Mice with Doses Listed on Left</i> | | | |
| 5 organisms | 0/4 | 1/4 | 0/4 |
| 50 " | 2/4 | 3/4 | 3/4 |
| 500 " | 4/4 | 4/4 | 4/4 |
| 5,000 " | 4/4 | 4/4 | 4/4 |

ganisms was found to be 0.200 mg. Expressed as dry weight of organisms, the typhoid vaccine contained 200 TIU/0.2 mg., or 1000 TIU/mg. It must be remembered that these organisms had been treated with heat and phenol in their transition from the living state to a vaccine.

DISCUSSION

Some of the stipulations made under the headings of materials and procedures are so obviously essential for consistent results that they need no further comment, whereas the reasons for others may be somewhat obscure. Of the latter, the age of the test culture, the test dose of challenging organisms, the time interval between immunization and the test for immunity, and the "twice-repeated" test, probably deserve some explanation.

A 12 hour culture has been specified because of its high percentage of viable organisms and chiefly because of the consistent behavior (virulence) of organisms from such a culture experienced by us over a period of several years. It is as nearly a "constant" as could be expected and desired, considering the nature of such material. Maintenance of cultures by lyophilization is, of course, recommended.

The challenging dose of 50,000 organisms has been chosen also on the basis of experience, dating from our first titrations of Wakeman's polysaccharide in 1936 and 1937. This number (50,000) of organisms is sufficiently high to assure a dose of at least 50 m.l.d. even under unfavorably low temperatures of the animal room, yet, it will rarely exceed 500 m.l.d.; and the bulk of bacterial protein in 50,000 organisms is much too small seriously to affect the animal from the standpoint of toxicity. The test dose may therefore be considered as an *infective* or *invasive* dose, in contradistinction to a *toxic* dose, of the challenging organisms.

The 7 day interval between immunization and the test for immunity has been selected on the basis of much experimental work indicating that mice, after a single intraperitoneal injection of an immunogenic substance, quickly respond and reach the peak of their immunity within the first week.

Concerning the "twice-repeated" test, the objective of this repetition is confirmation. A single test with small groups of four animals *may* yield as perfectly valid results as a test involving much larger numbers; on the other hand, the possibility of an accidental result is much greater when smaller

numbers of animals are employed. It is believed, however, that the combined results of a thrice-performed test, even with small groups of four animals in each, are more reliable than the results of a single test with groups of twelve animals, because of the element of confirmation obtained by repetition.

SUMMARY

A proposed Typhoid Immunogenic Unit (TIU) has been defined, and materials and methods employed in its determination have been described. Adoption of the proposed method of titrating antityphoid immunogenic substances, and the computation of results in multiples of the proposed unit, would provide a standard technique for evaluating such substances and would provide a standard term for the expression of their effectiveness. Much uncertainty regarding the *relative* value of antityphoid immunizing substances could thus be eliminated.

The proposed method is based on experience with this type of work and with the recommended materials, and has proved practical in all respects for conditions as they exist at the source of this paper. In the event that certain requirements would be difficult to

meet in other laboratories performing such tests as this, modifications rendering the method more universally acceptable may be necessary. The objective is to establish a procedure which will be reliable and practical in the hands of all workers engaged in the standardization of biologicals.

The foregoing proposal may also find application in the standardization of other bacterial vaccines and immunogenic products for which other methods have not been developed.

ACKNOWLEDGMENT—I am grateful to Captain C. V. Seastone, M.C., for his valuable suggestion to include in the text the section on the reference point.

REFERENCE

1. Siler, J. F., Dunham, G. C., Longfellow, D., and Luippold, G. F. Immunization to Typhoid Fever. *Am. J. Hyg.*, Monographic Series, No. 17 (Sept.), 1941.

NOTE: Since the date this paper was submitted for consideration, an article by Griffiths (Griffiths, J. J., *Public Health Reports*, Vol. 59, No. 47, November 24, 1944), has been published discussing a laboratory method of determining the potency of typhoid vaccine. Thus there have been proposed methods of determining the absolute potency of an immunogenic substance (in terms of T.I.U./Mg.) and of titrating for potency the final product intended for distribution and use. G.F.L.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 35

February, 1945

Number 2

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CONSTRUCTIVE THINKING ABOUT MEDICAL CARE

SINCE the adoption by the American Public Health Association of its official statement on "Medical Care in a National Health Program,"¹ two other important contributions have been made toward the solution of the complex problems involved.

The first of these contributions is a report on "Principles of a Nation-Wide Health program"² prepared by a Health Program Conference which has been meeting to discuss the matter in hand since the fall of 1943, under the chairmanship of Michael M. Davis. This Conference had no mandate from any official group; but its conclusions carry the weight of the judgment of highly competent experts in the field. Of the 29 members of the Conference, over one-third were physicians, including such constructive leaders as E. P. Boas, Alan Gregg, and Kingsley Roberts of New York; Allan M. Butler, Hugh Cabot, and Channing Frothingham of Boston; Franz Goldmann and J. P. Peters of New Haven. Somewhat over another third were economists and experts on actuarial problems and on public administration. The rest were officers of government agencies concerned with medical care, of whom Dean A. Clark and George St. J. Perrott of the Public Health Service and I. S. Falk of the Social Security Board are well known to our Association. This group, bringing together the viewpoints of physicians, economists, and administrators, agreed "that good medical care is a necessity of life, comfort, and efficiency; that the need for medical care is now insufficiently met for large numbers of persons; and that, to meet the need, public action is required on a nation-wide scale."

The report states that "at least nine-tenths of our population need protection against the uneven and unpredictable costs of sickness. Most of our population need access to better organized professional services." The present tendency to develop a poor-man's system of medical care under welfare departments and a second system under insurance for the self-supporting is deplored. "A national health program should therefore include, in its coverage, all or most of the population."

The program should be comprehensive in scope of service, as well as in application. "Good medical care—preventive, diagnostic and curative—should be available to all the people in proportion to their need for it, and regardless of their ability to pay." "Plans of medical care which are limited to hospitalization, surgery or 'catastrophic illness' only, do not express the ideals of medicine, nor do they apply the present powers of medicine at the most effective points or in the most economical ways. Plans which provide cash payments only, to meet the cost of some services in whole or in part, are still more limited in medical and economic value."

Therefore the Conference believes that "medical services should be made financially accessible to all through a national system of contributory health insurance, combined with taxation in behalf of people without sufficient income, preventive services and needed extensions and improvement of facilities." "In order that comprehensive service shall be available to all or most of the population and in order to minimize the administrative costs of acquiring members, it is essential that financial participation in the system be required by law. The contribution for medical care insurance will not mean an added burden on the earnings of workers. The American people are now spending for physicians' services and hospitalization enough to provide for all with only minor supplementation, if these payments are regularized, instead of falling with disastrous uncertainty."

In addition to insurance funds, general tax moneys will be required for "(a) new or improved hospitals and health centers, particularly in rural areas, (b) the further extension of full-time public health departments and other preventive measures, so that every part of the country will be served thereby, and (c) the provision or improvement of medical services to those dependent and other persons not directly covered by the insurance system."

The Conference report is particularly valuable in its emphasis on quality of medical care, a problem strangely neglected in most official medical discussions of the subject. "The quality and the continued improvement of medical services cannot be assured unless there is ample support for medical education and research; freedom of experimentation in medical science, medical technology, and in the forms of medical practice; and unless the career of a physician offers stimulating professional opportunities and adequate financial compensation." It is pointed out that the compensation of the physician should be estimated in terms of annual income, with due allowance for variations in professional competence and in geographical factors influencing the cost of living. Such compensation "should, wherever possible, be on a basis not directly related to the amount of service supplied to any individual patient." A national plan should recognize three methods of payment, salary, capitation, and fee-for-service. It is pointed out, however, that the fee-for-service basis is most open to abuse by both patients and physicians, is costly to administer, and unfavorable to promotion of quality and the use of preventive services. It should therefore be discouraged, except for specialist services under certain conditions.

The conference wisely lays special stress on the values of group practice. "The people will be assisted in selecting their physicians and other resources for care, and physicians will be enabled to supply the best service, if services are supplied through teamwork in organized professional groups and with hospitals as the centers from which most preventive and curative services radiate. A nation-wide health program should expedite the present evolution of American

hospitals in this direction, by providing financial underpinning and stimuli to improved hospital organization." "An organized group of doctors, including general physicians and specialists in due proportions, with pooled use of equipment and assistant personnel and in affiliation with a hospital, represents the most desirable form of service. There are sufficient examples of group practice in the United States to demonstrate its efficiency and economy. Numerous studies have shown that, through well-organized group practice under a prepayment plan, about twice as much physicians' and auxiliary service may be furnished for the same total expenditures as the people are accustomed to spend for comparable services supplied in the same community through individual practice paid for on a fee-for-service basis." At the same time "these advantages to the public are accompanied by improved professional opportunities and more assured income for the physicians."

Under a comprehensive plan, such as that proposed, "the general principles of freedom for people in the choice and change of medical resources, and the corresponding freedom for physicians to accept or reject patients, are basic protections against regimentation, and should be extended beyond what exists today."

To attain the ends outlined, the Conference calls for a national program, with decentralized administration of services. "The determination of policy on national, local and intermediate levels, should be by bodies representing the public interest." These bodies should be representative of the chief groups of those who receive service and of those who furnish it. Locally, "there should be responsible participation of local people, physicians and agencies (governmental and voluntary) in the administration and control of their health services, under national standards. Medical care cannot be run satisfactorily by remote control." These suggestions are sound as far as they go. They are, however, very general; and fail to recognize specifically the proper responsibility of federal, state, and local health authorities. The recommendations of the Health Program Conference should—in this respect—be supplemented by the more specific program presented in the A.P.H.A. program for Medical Care in a National Health Program.

The A.P.H.A. program represents the judgment of experienced health administrators; that of the New York Conference, the expert knowledge of physicians and economists. The third recent contribution in this field was made by a Conference held in Washington on December 8 and 9, on the call of the Physicians' Forum for the Study of Medical Care. At this meeting, the problems of medical care were discussed by progressive physicians with 150 representatives of consumer groups. It was the first conference of this type since the National Health Conference of 1938.

Dr. Ernst P. Boas of the College of Physicians and Surgeons, Columbia University, opened the meeting with a criticism of the isolationist attitude of "organized medicine" and called for a coöperative effort between medical and non-medical groups to map out an adequate program of medical care. Dr. Henry B. Richardson of the Cornell University Medical College stressed the need for better distribution of hospitalization facilities and the reorganization of already existing hospitals. Dr. Franz Goldman of the Yale School of Medicine, reviewing the various methods of paying for medical care, pointed out that the problem now is not whether we should use a larger share of the national income to pay for medical care but whether we ought to adopt methods of organization that systematize existing expenditures and insure the most effective utilization of available resources. Dr. Channing Frothingham of Boston, Chairman of the

Committee of Physicians for the Improvement of Medical Care, discussed four important factors necessary to insure the opportunity to obtain good medical care: well trained physicians, essential equipment, sufficient nursing service, and appropriate supplies for medication, both preventive and curative. Millard Rice, National Service Director of the Disabled American Veterans, and Dr. Sidney Greenberg of New York urged speedy improvements in the program for the rehabilitation of returning soldiers. Dr. Alan Gregg of the Rockefeller Foundation, stressed the importance of "tenacious, solid and persistent provision for research work" as fundamental to the development of good medical care programs. The proceedings of the Conference will shortly be made available for general distribution.

The A.P.H.A. Program, the New York Conference Report, and the Physician's Forum discussion differ in their emphasis on detail; but they are identical in their essential trends. They contain much material which should be considered in drafting any federal or state legislation which may be brought forward in this field. Such measures should include provision for essential preventive services and facilities,³ for protection of the quality of medical care and for the definition of responsibilities of administration. In the three documents we have reviewed, there is ample and detailed material for such revision.

It seems clear that the question before us with regard to the provision of adequate medical care for the American people is not "Whether" but "How."

REFERENCES

1. *A.J.P.H.*, 34:1252 (Dec.), 1944.
2. Copies of this report can be obtained from the Committee on Research in Medical Economics, 1790 Broadway, New York, N. Y.
3. A bill recently introduced by Senator Pepper of Florida, helpfully supplements the Wagner Bill in this respect.

CONTROL OF COMMUNICABLE DISEASES

THE formulation of basic principles governing the causation and control of specific communicable diseases has been one of the most outstanding contributions of our Association to the cause of public health. Beginning with the report of a committee of the Health Officers Section made in 1917, a series of constantly revised reports on "The Control of Communicable Diseases" have been issued during the years (in 1926, 1935, and 1940)—from the beginning under the inspiring leadership of Haven Emerson. These reports have had a world-wide circulation; more than 350,000 copies have been distributed, and they have been accepted as the most authoritative basis of reference in the important field with which they deal. A new revision just completed and issued this winter will therefore be welcomed with keen interest.

The revision of 1945 has been unusually extensive.¹ This report covers 72 different diseases, 20 of which are new. Among the additions are Food Poisoning (*Staphylococcus*), Primary Atypical Pneumonia, Hepatitis (Infectious), Rheumatic Fever, and many exotic diseases, such as Bartonellosis, Dengue, Leishmaniasis, Sand-fly Fever, and Trypanosomiasis. Data (or indications of the absence of data) are given for each disease on recognition of the disease, etiologic agent, source of infection, mode of transmission, incubation period, period of communicability, susceptibility and immunity, prevalence, and methods of control. The most important control methods are emphasized by type face. Thus, we have

here, in pocket form, a condensed but authoritative textbook on practical epidemiology.

It is interesting to note the recognition of three etiologically distinct forms of Pneumonia (Pneumococcal Acute Lobar Pneumonia, Primary Bacterial Pneumonia other than Pneumococcal, and Primary Atypical Pneumonia). Particularly gratifying is the grouping of the streptococcal diseases in accordance with modern knowledge. Under the general heading Streptococcal Infection—Respiratory, are given: A, Scarlet Fever; and B, Streptococcal Nasopharyngitis, Streptococcal Tonsillitis, "Septic Sore Throat." Under a second heading, Streptococcal Infection—Other than Respiratory, are: A, Erysipelas; and B. Puerperal Infection. The Rickettsial Diseases are grouped together under the following headings according to the type of vector involved: A I, Epidemic or Classical Typhus; A II, Epidemic or Murine Typhus; B, Rocky Mountain Spotted Fever; C, Tsutsugamushi Disease or "Scrub Typhus," with footnote reference to less well known members of the group. In this respect, as in others, the report epitomizes the soundest and best judgment of epidemiological research.

While the committee has not dealt with therapeutics, it does contain frequent references to the use of the sulfonamide drugs for prophylactic purposes. It brings in for the first time the value of repellents in the control of insect-borne diseases. Its highly critical comment on the procedure of placarding should be given careful consideration by the health officer.

In the past, the reports of Dr. Emerson's Committee have been accepted as official by the Association and the U. S. Public Health Service. The present edition is again official with the U.S.P.H.S. and as well with the U. S. Navy. It is approved in principle by the Surgeon General, U. S. Army. The present edition has been prepared in collaboration with medical officers of the British Ministry of Health at the direction of Sir Wilson Jameson, Chief Medical Officer, and it is hoped that the report is on its way to becoming official in Great Britain where it has been widely circulated. It has been proposed to place a copy in the hands of each medical student in Great Britain. Dr. P. Z. King, the Director of the National Health Administration of China, has indicated that the report will be considered for adoption as official in China and for translation into Chinese. It is already being translated into Spanish, Portuguese, Italian, French, and Arabic under the Office of War Information. It is being presented for adoption by each of the Pan American republics and is on the agenda for consideration by the Canadian Dominion Health Council. It is thus in a unique way a document which seems likely to be accepted as representing the best judgment of scholars throughout the world. It is an achievement of which Dr. Emerson, his Committee, and the Association may feel justly proud.

REFERENCE

1. The Control of Communicable Diseases. Report of the Subcommittee on Communicable Disease Control of the Committee on Research and Standards of the A.P.H.A.: Haven Emerson, *Chairman*; Gaylord W. Anderson, T. J. Carter, L. T. Coggeshall, J. A. Doull, J. P. Leake, K. F. Maxcy, A. S. Pope, G. H. Ramsey, E. L. Stebbins.

TOO MANY DEGREES

THE report on Public Health Degrees and Certificates Granted in the United States and Canada presented by the Committee on Professional Education¹ is in some ways a disheartening document. In the academic year, 1943-1944, 16 different varieties of degrees were offered by 17 institutions in the field of

Hospital, Salt Lake City, Utah, Professor of Pediatrics
 Sister M. Clare Carroll, 348 Forrest Ave., N. E., Atlanta, Ga., Director, Catholic Colored Clinic
 Josephine Hooley, R.N., Room 110, Municipal Bldg., Elkhart, Ind., Supervisor, Child Welfare Station
 David B. Witt, M.D., 126 Kirkman St., Lake Charles, La., Acting Director, Calcasieu and Cameron Parish Health Units

Public Health Education Section

John K. Coker, M.D., 1930 Flower St., Bakersfield, Calif., Director of Public Health, Kern County Health Dept.
 Bertha Gold, M.S., 7 East 82nd St., New York 28, N. Y., Asst. Professor and Chairman, Department of Physiology, Health and Hygiene, Hunter College
 Margaret C. Lafferty, 722 Tewkesbury Pl., Washington 12, D. C., Information Specialist, U. S. Public Health Service
 Renee Lyons, M.A., 1826 Arthur Ave., Bronx 57, N. Y., Supervising Nurse, Department of Health
 Paul G. Macurda, 145 State St., Springfield, Mass., Exec. Secy., Hampden County Tuberculosis and Public Health Assn.
 Helen McKey, M.A., University of Georgia, LeConte Hall, Athens, Ga., Asst. Professor of Nursing Education
 Grace M. Palmer, 600 Lexington Ave., New York, N. Y., Health Education Secretary, National Board, Y. W. C. A.
 Bertha I. Parkhurst, Arizona Anti-Tb. Assn., 403 Heard Bldg., Phoenix, Ariz., Director of Health Education

Public Health Nursing Section

Ethel R. Biggs, R.N., 11 Wells Ave., East Hartford, Conn., Director, East Hartford Public Health Nursing Assn.
 Ada L. Burt, R.N., 2120 South 10th East, Salt Lake City, Utah, Public Health Nurse, U. S. Public Health Service
 Monica M. Frith, R.N., M.P.H., 2124 West 48th Ave., Vancouver, B. C., Canada, Consultant in Public Health Nursing, Provincial Board of Health
 Helen M. Hallgren, 133 Byram Rd., East Portchester, Conn., Field Supervisor, Town Nursing Service of Greenwich
 Margaret Knapp, R.N., B.S., St. Clair Co. Health Dept., 325 E. Broadway, E. St. Louis, Ill., Asst. Public Health Nursing Consultant, U. S. Public Health Service
 Clarissa S. Luttenton, Lakeville Rd., Genesee, N. Y., Public Health Nurse, Livingston County Health Service

Charlotte E. Ohde, R.N., Court House, Waukesha, Wis., County Nurse, Waukesha County Health Dept.
 Beulah Oldfield, R.N., 437 Federal Bldg., Muskogee, Okla., Field Nurse Supervisor, U. S. Indian Service
 Cornelia B. Preston, M.P.H., 4038 Humphrey St., St. Louis, Mo., Asst. Director, City Hospital School of Nursing
 Harriett L. Wilcoxson, B.N., 305 West 7th St., Plainfield, N. J., Director, Visiting Nurse Association of Plainfield

Epidemiology Section

Roger F. Sondag, M.D., 319 West Tenth St., Jacksonville, Fla., Surgeon (R), U. S. Public Health Service; Director, Division of Venereal Disease Control, State Board of Health

Unaffiliated

Elliott L. Adler, D.V.M., 5026 N. Kimball Ave., Chicago, Ill.
 Morris A. Brand, M.D., Rm. 406, 1790 Broadway, New York 19, N. Y., Medical Director, Mayor's Committee on Medical Care
 Austin V. Deibert, M.D., Surgeon's Office, Hq. Ninth Service Command, Fort Douglas, Utah, Liaison Officer; Senior Surgeon, U. S. Public Health Service
 Herbert R. Domke, M.D., 54 W. Hubbard St., Chicago, Ill., Chief Medical Officer, Chicago Health Dept.
 Carl W. Eberbach, M.D., 324 E. Wisconsin Ave., Milwaukee 2, Wis., Member, State Board of Health
 Robert B. Hickman, 615 Colorado Bldg., Denver 2, Colo., Administrative Analyst, U. S. Public Health Service, District No. 8
 Edward H. Mann, U. S. P. H. S. Lab., E. 3rd and Kilgour Sts., Cincinnati, Ohio, Asst. Sanitarian (R), U. S. Public Health Service
 Seymour J. Ornstein, D.V.M., 3502 Hull Ave., Bronx 67, N. Y.

DECEASED MEMBERS

Elva E. Gore, Springfield, Ill., Elected Member 1930, Vital Statistics Section
 Jane I. Hershey, Ph.D., St. Louis, Mo., Elected Member 1941, Laboratory Section
 Charles D. Howard, Concord, N. H., Elected Member 1913, Elected Fellow 1923 (Charter Fellow), Food and Nutrition Section
 Marie E. Kopp, Ph.D., New York, N. Y., Elected Member 1938, Unaffiliated
 J. J. McGrath, Salem, Mass., Elected Member 1917, Elected Fellow 1923 (Charter Fellow), Health Officers Section
 Alva S. Pinto, M.D., Omaha, Nebr., Elected Member 1928, Health Officers Section

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York 19, N. Y.

POSITIONS AVAILABLE

(Supplemental to list in January Journal)

Bacteriologist Wanted. Must be graduate from university of recognized standing with specialization in bacteriology and supplementary training in biology and chemistry, and practical laboratory experience in bacteriological, chemical, or biological work, preferably in connection with public health or hospital work, or any equivalent combination of education and experience; thorough knowledge of laboratory methods and technic in bacteriological and public health work. Salary \$2,220 to \$2,400, plus cost of living adjustment presently set at \$241.80 per year. Apply City Health Department, Jackson, Mich., Civil Service Board.

Wanted: Assistant in Venereal Disease Control, salary \$2,820-\$3,300. Must have not less than 6 years' experience in public health work with emphasis on v.d. work or graduate training in public health and 2 years' such employment or any satisfactory equivalent of experience and training. Must be United States citizen and resident of State of Connecticut for at least 1 year prior to filing application. Apply State Department of Health, Hartford, Conn.

Wanted: Laboratory technician in Eastern County. Apply Box A, Employment Service, A.P.H.A.

Unassembled examinations for positions in West Virginia State Health Department are announced. Applications will be accepted continuously. Registers will be established as soon as sufficient applications have been received to furnish adequate competition. Positions for which applications are being accepted and their respective salary ranges are listed below. Appointments may be made at above minimum salaries.

| | |
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| | \$5,400-\$6,600 |
| Deputy State Health Commissioner | 3,800- 6,000 |
| Director of Maternal & Child Hygiene | 4,200- 5,400 |
| Asst. Director of Maternal & Child Hygiene | 2,400- 3,000 |
| Nutritionist Consultant | 4,800- 6,000 |
| Director of Communicable Diseases | 4,800- 6,000 |
| Director of Venereal Disease Control | 4,200- 5,400 |
| Venereal Disease Consultant | 3,960- 5,160 |
| Field Clinician—Tuberculosis | 4,440- 6,000 |
| Senior Health Officer | 3,600- 4,200 |
| Junior Health Officer | 3,600 |
| Health Officer Trainee | 4,200- 5,400 |
| Director of Public Health Education | 3,240- 3,960 |
| Associate Engineer (Industrial Hygiene) | 3,000- 3,600 |
| Associate Industrial Hygienist | 2,640- 3,540 |
| Assistant Engineer (Industrial Hygiene) | 2,640- 3,540 |
| Assistant Engineer (Milk Sanitation) | 2,640- 3,540 |
| Assistant Engineer (Sewage) | 2,640- 3,540 |
| Chemical Engineer | 2,640- 3,540 |
| Senior Chemist (Industrial Hygiene) | 2,640- 3,540 |
| Senior Chemist (Sanitary Engineering) | 3,600- 4,200 |
| Cancer Control Educational Consultant | 2,160- 2,640 |
| Senior Sanitarian | 2,100- 2,700 |
| Public Health Nursing Supervisor (State Level) | 1,800- 2,400 |
| Public Health Nursing Supervisor (Local Level) | 2,640- 3,540 |
| Senior Bacteriologist | 2,640- 3,540 |
| Senior Serologist | 4,800- 5,760 |
| Chief of Medical Services (Dept. of Public Assistance) | |

There will be no state residence requirements for these examinations, but preference in making appointments may be given to West Virginia residents.

Wanted: Deputy Health Officer in department of health in city of 100,000. Give age, educational qualifications and experience. Box M, Employment Service, A.P.H.A.

Southern state Health Department announces positions as follows:

Director of Communicable Disease, \$4,500 to \$5,400

Director of Maternal & Child Health, \$4,200 to \$4,800

Director of Venereal Disease Control, \$4,500

Sanitary Engineer, \$3,600 to \$4,800

Director of Dental Health, \$3,600 to \$4,800

Good offices, car allowance. Large industrial city in the South. Apply Box H, Employment Service, A.P.H.A.

Wanted: Bacteriologist for work in Public Health Laboratory in mountain state. Preferably familiar with water and milk analyses and other techniques employed in public health laboratory. Salary Scale—\$160-\$200. Address G. M. Anderson, M.D., State Health Officer, Cheyenne, Wyoming.

Wanted: Chief Sanitarian. Preferably with Bachelor's degree and/or engineering degree. Salary \$3,600 per year subject to 3 per cent deduction for retirement plan. Payment for use of personal car

on mileage basis. Maximum age 45. For further information write Personnel Clerk, Dept. of Personnel, 4th Floor, City Hall, 241 W. South Street, Kalamazoo 9, Mich.

Industrial Hygiene Chemist: Permanent position with Oregon State Board of Health. Degree in chemistry and 2 years' experience required. Salary \$250-\$300 per month. Applications and further information obtainable from Merit System Council, 616 Mead Building, Portland 4, Ore. Apply by March 1.

Negro health education worker desired by Tuberculosis Society. Development of a health education program for a large western city offers good opportunity to right worker. Write Box D, Employment Service, A.P.H.A.

Tuberculosis Association in large western city seeks health education worker for active community program. Also, experienced case worker or medical social worker desired. These are attractive positions open in an agency with dynamic program closely related to official groups. Write Box W, Employment Service, A.P.H.A.

(Advertisement for Santa Barbara closed.)

ANNOUNCEMENT OF EXAMINATION FOR REGULAR CORPS APPOINTMENT AS ASSISTANT SURGEON AND SENIOR ASSISTANT SURGEON UNITED STATES PUBLIC HEALTH SERVICE

An examination to establish eligibility for appointment as medical officers in the grade of Assistant Surgeon (1st Lieutenant) and Senior Assistant Surgeon (Captain) is hereby announced to be held on the dates specified below. An applicant for Assistant Surgeon must be a citizen of the United States, a graduate of a recognized medical school, and must have completed, or be in the process of completing, one year of internship or its equivalent. An applicant for Senior Assistant Surgeon must meet requirements for Assistant Surgeon and must have had in addition at least four years of professional training or experience.

The compensation of officers in the grade of Assistant Surgeon is \$3,411.00 per annum with dependents and \$2,975.50 per annum without dependents. The compensation of officers in the grade of Senior Assistant Surgeon is \$3,991.00 per annum with dependents and \$3,555.50 per annum without dependents. Appointments in the Regular Corps are permanent in nature and afford opportunity for a

career. Promotions are at regular intervals up to and including the grade of Medical Director (Colonel). Promotion, pay, and retirement schedules for medical officers in the Regular Corps of the U. S. Public Health Service are essentially the same as those of the Medical Corps of the Army. Officers agree to serve where assigned by the Surgeon General. Opportunity is afforded for assignment in a wide range of professional activity including hospital, research, and public health duty. Travel expenses incident to official business or change of station, including transportation of dependents and household effects, are paid by the Government.

The Board of Examiners will be in the following places at 9:00 A.M. on the dates specified below during February. Later appointments will be arranged during March and April in other cities. Candidates should arrange to have their physical examination completed at any one of the following listed places on or before the date shown.

Those individuals who complete the

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|------------------|-------------|
| Feb. 5, 6 | —Boston |
| Feb. 7, 8, 9, 10 | —New York |
| Feb. 12, 13 | —Washington |
| Feb. 14, 15 | —Baltimore |
| Feb. 16, 17 | —Norfolk |
| Feb. 21, 22 | —Savannah |
| Feb. 23 | —Atlanta |
| Feb. 26, 27 | —Cleveland |
| Feb. 28 | —Detroit |

physical examination and certain other portions of the examination will be permitted to participate later in the three day written examination beginning April 23, 1945, either at the place where the

physical examination was conducted or at some other nearer point. Applicants may obtain application blanks by writing to the Surgeon General, U. S. Public Health Service, Bethesda Station, Washington 14, D. C. These forms may be filled out and delivered to the Board of Examiners or may also be obtained from the Board at the time the applicant appears before the Board. Applicants wishing to use National Board grades in lieu of written examination should present their certificates to the Board. Applicants should bring their medical school diploma with them.

POSITION WANTED

Health Educator, Ph.D., Harvard, with training in medical sciences, public health and education, experienced as

teacher, seeks position in northeastern United States. H-512
(M-460 closed)

NEWS FROM THE FIELD

CANCER

The Public Health Cancer Association of America is a new organization composed of public health workers whose major interest is in cancer control. The association has been functioning informally for the past three years and has held Cancer Symposia in connection with the last two War-time Conferences of the American Public Health Association. Formal organization of the Public Health Cancer Association took place on October 1, 1944, in New York City. The Association now includes staff members of the health departments of Connecticut, Georgia, Illinois, Iowa, Massachusetts, Michigan, New York, South Carolina, West Virginia; Nassau County, N. Y.; New York City; the Cancer Commissions of Missouri and Vermont; the American Cancer Society and the National Cancer Institute. The President of the Association is Dr. Herbert L. Lombard, Division of Adult Hygiene, Massachusetts Department of Health, Boston, Mass.

Public health workers who may be interested in the Association should

direct inquiries to the Secretary-Treasurer, Dr. Morton L. Levin, Division of Cancer Control, 18 Dove Street, Albany 6, N. Y.

NATIONAL SANITATION FOUNDATION, ANN ARBOR, MICHIGAN

Dr. Henry F. Vaughan, dean of the School of Public Health of the University of Michigan, has announced that the National Sanitation Foundation has been chartered in Michigan, with headquarters at the School of Public Health, Ann Arbor, for the purpose of promoting progress and betterment in environmental sanitation, health and education.

The Foundation will be concerned with the advancement of scientific research, experiments, demonstrations, evaluations, and the practical application of new and coördinated knowledge in the field of environmental sanitation.

Studies in food sanitation and food handling techniques will receive early consideration. Selected studies sponsored by colleges, universities and public health agencies and departments of federal, state, and local governments will receive material aid.

The work of the Foundation is financed by gifts and contributions from manufacturers, distributors, and other individuals and groups interested in the promotion of environmental health.

The officers of the Foundation, in addition to Dr. Vaughan, who is *President*, are Dr. Nathan Sinai, Professor of Public Health at the University of Michigan, *Vice-president*; and Walter F. Snyder, former Chief of the Bureau of Sanitation of the Toledo, Ohio, Health Division, *Executive Director*.

Members of the Board of Trustees in addition to the officers are Judge Arthur J. Lacy and H. William Klare, hotel executive, both of Detroit.

MORRISON PRIZE AWARDED TO DR. ALEXANDER-JACKSON

The A. Cressy Morrison prize of \$200 was awarded recently by the New York Academy of Science at its 127th annual meeting in New York to Dr. Eleanor Alexander-Jackson of the Department of Public Health and Preventive Medicine, Cornell University Medical College, New York, N. Y., for her discovery of a new form of the organism causing tuberculosis. It is stated that, through a new staining technic which she developed, it has been discovered that the organism occurs in a "zoogleal" form. Dr. Alexander-Jackson is the first woman scientist to receive the award.

ST. LOUIS COUNTY ORGANIZES FIELD TRAINING CENTER

A recent bulletin of the St. Louis County, Mo., Health Department at Clayton, describes the field training center which has been set up in St. Louis County under the supervision of Edward G. McGavran, M.D., M.P.H., the Commissioner of Health.

Agencies cooperating with the county in the training of public health personnel include the University of Minne-

sota, St. Louis University, George Peabody College for Teachers, Vanderbilt University, Washington University, the Missouri State Health Department, the U. S. Public Health Service, and the U. S. Children's Bureau. The teaching staff lists 15 experienced individuals, in addition to the nursing staff, the sanitarians, and the student field instructors.

The Center has chosen for its objective the goals laid out in the *Public Health Nursing Curriculum Guide* prepared by the N.O.P.H.N. and the U. S. Public Health Service in 1942. The responsibilities of the field training center, of the university, and of the student are clearly set forth.

Some 19 units of field experience are outlined which compare favorably with those available in any other locality. Individuals and institutions interested in the center may address Dr. McGavran at Box 267, Clayton, Mo.

PEPPER SUBCOMMITTEE OF SENATE ISSUES INTERIM REPORT

The Subcommittee on Wartime Health and Education of the Committee on Education and Labor, U. S. Senate, released early in January an *Interim Report on Wartime Health and Education*. Senator Claude Pepper of Florida is Chairman. Other Senators on the Subcommittee include Elbert D. Thomas of Utah, James M. Tunnell of Delaware, Robert M. LaFollette, Jr. of Wisconsin and Kenneth S. Wherry of Nebraska.

The report points to heavy losses in manpower, both for the armed forces and for industry, resulting from defects, injuries, and illnesses which could be prevented or corrected if adequate medical care were available to the whole population. The report emphasizes the necessity for better distributed medical facilities and services in order that all of the people may benefit from modern medical knowledge. Health centers are

proposed for every community to bring preventive, diagnostic and curative medical services within easy reach of every group, wherever located. According to the plan of the Subcommittee, every state or major medical service area would have a functionally coördinated network of medical facilities including "outpost" health centers in sparsely populated areas, rural hospitals and district hospitals as intermediate institutions and larger base hospitals comparable to the present-day metropolitan medical centers serving as the hub of the network. Inclusion of existing public and private hospitals in the proposed regional networks is advocated. Federal grants-in-aid are recommended to assist in construction of new facilities where needed.

Among the recommendations of the report are the following: 1—Federal grants-in-aid to states to be authorized now to assist in post-war construction of hospitals, medical centers, and health centers in accordance with integrated state plans approved by the U. S. Public Health Service. It is recommended that federal loans and grants be made available to assist in post-war provision of urban sewerage and water facilities, rural sanitation and water facilities and milk pasteurization plants in communities or areas where such facilities are lacking or inadequate.

The report points out the studies made by the American Public Health Association in proposing the creation of approximately 1,200 public health districts with minimum populations of about 50,000, to be served by a full-time staff of doctors, engineers, and nurses. It is proposed that health department centers should be included in the medical center type of facility proposed by the committee. It is proposed that consideration should be given to the rearrangement and consolidation of local health jurisdictions and to the amalgamation of existing

full-time and part-time local health departments with overlapping functions. The federal government, according to the report, should increase the amount of its grants to state health departments to the end that complete geographic coverage by full-time health departments may be achieved.

It is proposed that federal scholarships or loans be made available to assist qualified students preparing for specialized service. It is also recommended that federal funds be made available to states for medical care of all recipients of public assistance, and it is proposed that these recommendations should be put into effect as soon as possible because further delay will postpone the orderly solution of our health problems and deprive the country of effective means of aiding industry to maintain full production and employment after the war. "We have seen what neglect of opportunities for better health has lost us during this war. We should resolve now that never again, either in war or peace, will the nation be similarly handicapped."

UNRRA ASSUMES OTHER HEALTH FUNCTIONS

Two sanitary conventions relating to maritime and aerial travel were signed on January 5 at the U. S. Department of State, Washington, providing that the duties and functions of the International Office of Public Health in Paris will be performed by UNRRA for a limited period. According to the press announcements, the conventions will come into force when signed by 10 or more governments and will run for not more than 18 months after they have become effective. Signature by the United States was made "subject to ratification." *The New York Times* reported that 4 governments signed the agreements on January 5, namely, the United States, Great Britain, France, and Poland. The conventions were then

left open for signature by others until January 15, after which time they will be open to accession by any government. They amend the International Maritime Sanitary Convention of 1926 and the International Sanitary Convention for Aerial Navigation of 1933 to confer the duties on UNRRA so that its efforts may be facilitated in the fields of displaced persons and epidemic control.

NOBEL AWARDS

On December 10, six of eight winners of the 1943-1944 Nobel Prizes in science and literature received awards amounting to \$120,000 at a luncheon in the Waldorf-Astoria Hotel, New York, N. Y. The occasion, which was sponsored by the American-Scandinavian Foundation, marks the first time that the Nobel Prizes ever have been presented in the United States. The presentations were made on behalf of King Gustav V by Wollmar F. Bostrom, minister from Sweden. Recipients of the awards were, among others, Henrik Dam, Rochester, N. Y., and Edward A. Doisy, Ph.D., St. Louis, for their work on vitamin K; Drs. Joseph Erlanger, St. Louis, and Herbert S. Gasser, director of the Rockefeller Institute for Medical Research, for their work on nerves, and Isidor I. Rabi, Ph.D., and Otto Stern, Ph.D., Pittsburgh, for the results of their study of the structure of the atom.

CAPITAL INDUSTRY GIVES ATTENTION TO EMPLOYEE HEALTH

A new venture in industrial health of the capital was the mass chest x-ray examination for symptoms of tuberculosis of employees of International Business Machines, conducted here with members of the Public Health Commission of the Washington Board of Trade as witnesses. Dr. Roy Lyman Sexton, chairman of the commission, commenting on the fact that this event

was the first of its kind in Washington industry, said "The mass x-raying of these employees is a definite step forward in industrial medicine in the District of Columbia and marks the start of a new era in which industrial management is giving special consideration to the health of workers. It is to be hoped that other Washington concerns will realize the importance of this added health measure for the detection of tuberculosis and will arrange similar mass x-ray examinations."

COLORADO REACTIVATES DIVISION OF INDUSTRIAL HYGIENE

At the request of R. L. Cleere, M.D., Secretary and Executive Officer of the Colorado State Board of Health, Denver, the U. S. Public Health Service has recently loaned A. T. Rossano, Jr., M.S., as Director of the Division of Industrial Hygiene to reactivate the industrial hygiene activities in the State of Colorado which had to be abandoned two years ago when the entire staff was called into the armed services. The staff of the Division will consist, according to the *Bulletin* of the Colorado State Board of Health, of an industrial hygiene engineer, an industrial hygiene chemist, and the part-time services of an industrial physician and an industrial nursing consultant. A completely equipped industrial hygiene laboratory will be maintained for precise analyses of atmospheric samples, materials and biological fluids.

STATE AND TERRITORIAL HEALTH OFFICERS

New Officers of the Association of State and Territorial Health Officers include:

President, Irl C. Rippin, M.D., Baltimore, Md.
Vice-President, Roy L. Chace, M.D., Denver, Colo.
Secretary, V. L. A. Geller, M.D., Boston, Mass.

PERSONALS

Central States

REGINALD A. FRARY, M.D., M.P.H.,† has resigned as Director of the Division of Venereal Disease Control, Nebraska State Department of Health, Lincoln.

GLADYS J. KLEINSCHMIDT, M.D., has been named Health Officer of Isabella County, Mich.

GEORGIA V. MILLS, M.D.,† has resigned as Deputy Health Officer in Saginaw, Mich.

HOMER G. SLADE, M.D., on October 25, became director of district health unit number 4, including the counties of Alpena, Presque Isle, Montmorency, and Cheboygan; he will have headquarters in Rogers City, Mich.

ALEXANDER WITKOW, M.D.,* has resigned as health officer of Menominee County, Mich.

Eastern States

C. WALTER CLARKE, M.D.,† New York, Executive Director of the American Social Hygiene Association, was recently appointed Clinical Professor of Public Health Practice at Harvard University.

IAGO GALDSTON, M.D.,* on November 9 delivered the opening address of the 10th series of lectures of the New York Academy of Medicine to the public. His subject was "Psychiatry in the History of Medicine." The opening address was designated the Linsley R. Williams Memorial Lecture.

ERNEST E. HUBER, M.D.,† of the U. S. Public Health Service, has been appointed liaison officer in the First Service Command with headquarters at 808 Commonwealth Avenue, Boston, Mass.

JAMES W. KNEPP, M.D., formerly a Lt. Colonel in the United States Army, has been appointed Health Officer of the Worcester District of

the Massachusetts Department of Public Health. Prior to his retirement from the Army, Dr. Knepp was Post Medical Inspector at Camp Edwards, Mass. He succeeds the late DR. OSCAR A. DUDLEY.

GEORGE E. PERKINS, M.D., has been appointed acting director of the Division of Venereal Diseases of the Massachusetts Department of Public Health to succeed DR. JOHN B. HOZIER † (U.S.P.H.S.) who has been recalled to Washington. Dr. Perkins served as Lt. Colonel in the Medical Corps of the United States Army until his retirement November, 1944.

PHILIP S. PLATT, Ph.D.,* who recently completed a current study of voluntary health agencies under the sponsorship of the National Health Council and for many years director of the Palama Settlement in Honolulu, T. H., has been appointed Executive Director of the National Association for the Blind.

HORACE C. SCOTT, M.D., Philadelphia, Pa., has been appointed deputy secretary of health of Pennsylvania in charge of Negro public health activities.

ELLEN B. WHITEMAN † has been appointed statistician in the Division of Public Health, The Commonwealth Fund, New York, N. Y. Miss Whiteman, who holds the M.P.H. degree from Harvard, has served in the Communicable Disease Division of the State Department of Health in Nashville, Tenn., and succeeds ERMINIE J. CROSS, who has left the Commonwealth Fund after 13 years as Secretary of the Division of Health Studies.

Southern States

COMMANDER ALVIN F. COBURN of the Epidemic Disease Control Section,

* Fellow A.P.H.A.

† Member A.P.H.A.

Bureau of Medicine and Surgery, Navy Department, Washington, D. C., was awarded the Wellcome Medal of the Association of Military Surgeons in the United States at the recent meeting in New York.

GEORGE A. DAME, M.D.,[†] Fernandina, Fla., has resigned as Director of the Nassau County Health Department and has been appointed Director of Local Health Service, State Board of Health, Jacksonville, Fla.

DONALD K. FREEDMAN, M.D.,^{*} U. S. Public Health Service, has been named Health Officer of District Number 5, Williamsburg, Va., to succeed WILLIAM W. FULLER, M.D., who resigned to enter the armed forces, effective November 1.

OSCAR DAVID GARVIN, M.D., M.P.H.,[†] Health Officer of Richmond and Scotland Counties, N. C., has been appointed to a similar position in Chatham, Orange and Person Counties to succeed DR. WILLIAM P. RICHARDSON, Chapel Hill, who resigned to become a District Director in the Division of Local Administration of the State Board of Health.

LT. COL. HAROLD B. GOTAAS^{*} has succeeded ALBERT R. DRIESBACH, M.D., COLONEL, M.C., A.U.S., as Director of the Division of Health and Sanitation, Office of the Coördinator of Inter-American Affairs, Washington. Colonel Gotaas has served as Chief of the Engineering Section and later as Assistant Director of the Division of Health and Sanitation and is working under MAJOR GENERAL GEORGE C. DUNHAM, M.C., U.S.A.^{*}

ROBERT D. HICKS, M.D., of Chester, S. C., Director of the York and Chester District Health Department, has also been placed in charge of the unit at Cherokee County with headquarters in Chester.

JAMES N. HOLTZCLAW, M.D.,[†] Director of the Greenville County Health Department, S. C., has been given jurisdiction over the unit in Laurens County.

ALLEN E. LEHEW, M.D., Lewisburg, W. Va., and JAMES R. RICHARDSON, M.D., Union, W. Va., have been appointed part-time Health Officers for Greenbrier and Monroe counties, respectively, succeeding DR. HERBERT DUNCAN,[†] former district health officer, who is now in Nashville, Tenn.

JOHN I. MITCHELL, M.D., Double Springs, Ala., Health Officer of Winston County for three years, has resigned effective October 1, to enter private practice, either in Russellville or in Pell City.

GARNETT P. MORISON, M.D., Charles Town, W. Va., has been appointed as part-time Health Officer of Berkeley County to succeed HENRY R. DUPUY, M.D.,[†] Martinsburg, W. Va. J. B. PORTERFIELD, M.D.,[†] has been appointed to the position of Director of Health for the City of Richmond following the resignation of DR. MIL-LARD C. HANSON,^{*} who has accepted a position with the American Red Cross.

THEODORE R. SHROP, M.D.,[†] Commissioner of Health in Cumberland County, Oakland, Md., has resigned to accept the position of Commissioner of Health of Lorain County District Department of Health, Oberlin, Ohio, where he succeeded LOUIS E. KERP, M.D., M.P.H.,^{*} now of the U. S. Public Health Service, Reserve. BRIGADIER GENERAL JAMES STEVENS SIMMONS, M.C., U.S.A.,^{*} chief of the Preventive Medicine Service, Office of the Surgeon General, U. S. Army, Washington, D. C., recently delivered the Commencement Address at Marquette University School of Medicine, Milwaukee, and was awarded the honorary degree of Doctor of Science.

VIRGIL P. W. SYDENSTRICKER, M.D., Professor of Medicine, University of Georgia School of Medicine, Augusta, and physician in chief at the University Hospital, has accepted a commission with the United Nations Relief and Rehabilitation Administration as chief counsel in nutrition of western Europe. His rank will be that of colonel.

SMITH L. TURNER, M.D., Williston, Fla., has recently been appointed Director of the Levy County Health Department at Bronson, Fla.

EDWIN R. WATSON, M.D.,† of the Georgia Department of Public Health, Atlanta, was elected president of the Association of Maternal and Child Health Directors at its recent organization meeting in New York. The association includes the directors of maternal and child health services in the forty-eight states and possessions as well as other medical personnel who are associate members. DR. JESSE M. BIERMAN,* San Francisco, was elected vice-president and DR. DEAN W. ROBERTS,† Baltimore, secretary-treasurer. According to *Georgia's Health* the new association has the approval of the Association of State and Territorial Health Officers and is to work in close cooperation with it.

PAUL L. WERMER, M.D.,† has been granted a leave of absence from his duties as Director of the Waco-McLennan County Health Unit to enter the U. S. Public Health Service as a Surgeon. He is stationed at the U. S. P. H. S. Medical Center, Hot Springs, Ark.

HUNTINGTON WILLIAMS, M.D.,* of Maryland, has been reappointed Commissioner of Health of Baltimore for a six year term. He has held the position since January, 1933, after having first served as Director of Health from October 1, 1931.

Western States

STANLEY B. FREEBORN, Ph.D., U. S. Public Health Service, who, after Pearl Harbor, organized and administered the program of the Public Health Service for malaria control in war areas, has returned to his position as Professor of Entomology and assistant dean of the University of California College of Agriculture, Berkeley, Calif.

JOHN O. RAFFERTY, M.D.,† San Francisco, has resigned as Deputy Director of the California State Department of Health, and has become Resident Physician of the Santa Cruz County Hospital.

Foreign

L. W. FITZMAURICE, M.D., D.P.H.,* Chief Medical Officer of the Bahamas, delivered a series of lectures on public health to the medical undergraduates of McGill University in Montreal during the month of October. Dr. Fitzmaurice also attended at Port of Spain, Trinidad, November 4 (II) A.V.D. Conference sponsored by the Colonial Welfare and Development Fund embracing all British West Indian Colonies. COL. O. C. WENGER, U.S.P.H.S., is in charge of Trinidad V.D. Control.

DEATHS

REUBEN APPLEBERRY, M.D., Farmington, Mo., president of St. Francois-Iron-Madison-Washington-Reynolds Counties Medical Society, for many years local health officer, on the staff of the Bonne Terre Hospital, Bonne Terre, Mo., died September 10, aged 63.

WILLIAM JAMES BASLER, M.D., West Leesport, Pa., president of the board of health, died in the Reading Hos-

* Fellow A.P.H.A.

† Member A.P.H.A.

pital, Reading, Pa., September 13, aged 51.

WILLIAM SMITH BEAN, Medical Director, U. S. Public Health Service, Washington, D. C., from June, 1944, until his death chief of the Hospital Division, Bureau of Medical Services, died suddenly November 26, aged 54.

JOHN ALOYSIUS CONNELLY, M.D., Trenton, N. J., member of the Medical Society of New Jersey, Health Officer of Trenton, medical director and visiting surgeon to the New Jersey State Prison Hospital, member of the staff of St. Francis Hospital; died October 26, aged 51.

EDWARD CRANCH ERNST, Medical Director, U. S. Public Health Service, Washington, D. C., assistant director of the Pan American Sanitary Bureau, member of the Royal Tropical Medical Society, Far Eastern Tropical Medical Association, Association of Military Surgeons of the U. S. and the American Hospital Association; died suddenly November 3, aged 58.

JANE B. HERSHEY, Ph.D.,[†] St. Louis, Mo., for the past six years a member of the Staff of the Laboratory Section of the St. Louis Health Division, who had served in the capacity of Supervisor of Bacteriology during the past 18 months, died in Barnes Hospital after a three months' illness on November 5, 1944.

JOHN M. McCUAN, M.D., Farwell, Tex., past president of the Kaufman County Medical Society; for many years Health Officer of Parmer County, died July 2, aged 79.

BERNARD T. MCGHIE, M.D.,[†] Deputy Minister of Health, Toronto, Ont., died in October, 1944.

FRIDGIR OLASON, M.D.,[†] of the Harvard School of Public Health, Boston, Mass., was lost at sea on November 17, 1944, when the ship on which he was returning to Iceland was torpedoed and sunk. He received the

Dr.P.H. degree from Harvard University posthumously on November 27, 1944.

CONFERENCES AND DATES

American Water Works Association—

New Jersey Section—Winfield Scott Hotel, Elizabeth, N. J. February 8.

Minnesota Section—Minneapolis, Minn. March 9-10.

Illinois Section—Chicago, Ill. March 12-13.

Indiana Section—Lafayette, Ind. March 15-16.

Southeastern Section—Montgomery, Ala. March 19-21.

Canadian Section—Toronto, Ont., Canada. March 21-23.

Ohio Section—Columbus, Ohio. April 5-6.

Montana Section—Lewiston, Mont. April 13-14.

New York Section—Elmira, N. Y. April 19-20.

Pacific Northwest Section—Gearhart, Ore. May 18-19.

Institute of Medicine of Chicago—Midwest Conference on Rehabilitation. Drake Hotel, Chicago, Ill. February 12.

Minnesota State Medical Association—Ninety-second Annual Session. St. Paul, Minn. May 21-23.

National Social Hygiene Day—February 7.

New York Institute of Clinical Oral Pathology, Inc.—One Hundredth Monthly Conference. At the New York Academy of Medicine. April 30, 1945.

New York Tuberculosis and Health Association—Annual Conference. Hotel Pennsylvania, New York, N. Y. February 7.

Texas Water Works and Sewerage Short School—Twenty-Seventh Annual Meeting. College Station, Texas. February 5-7.

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American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 35

March, 1945

Number 3

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Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

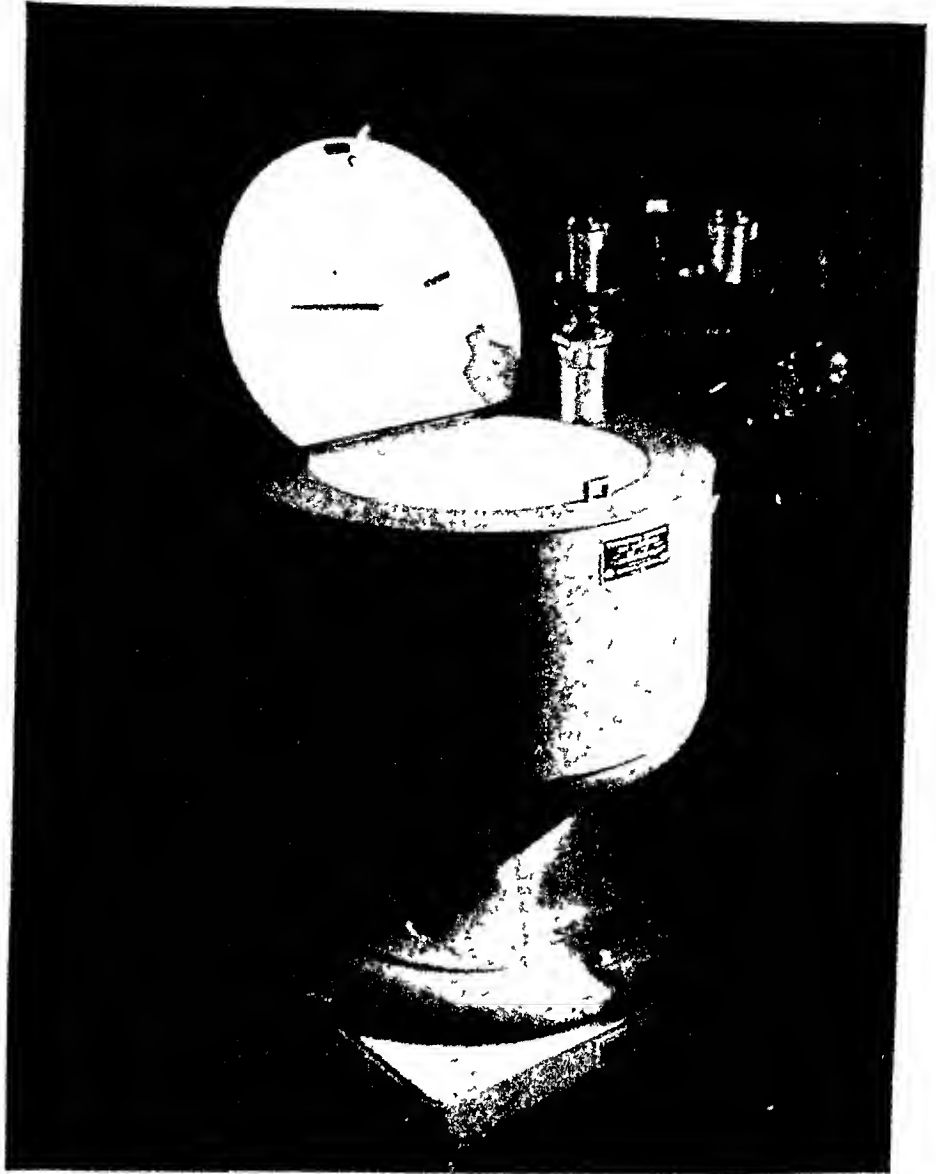
NOTICE:—Subscription \$5.00 per year for United States, Cuba and Mexico, South and Central America; \$5.50 for Canada; and \$6.00 for other countries. Single copies 50 cents postpaid. Copyright, 1945, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to the Managing Editor, Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.



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American Journal of Public Health

and THE NATION'S HEALTH

Volume 35

March, 1945

Number 3

Changing Challenges of Public Health*

C.-E. A. WINSLOW, DR.P.H., F.A.P.H.A.

*Professor of Public Health, Yale University School of Medicine,
New Haven, Conn.*

THE thrill of life lies in its repetitive renewal. The old passes and the new is born. Again and yet again, the social organism—like the individual living being—produces seeds of new life, seeds which, at first tiny and insignificant, have in them the power of growth, the force which drives on to the creation of a new and mighty organism.

We are met together today to celebrate one of the most significant seed times in the history of public health—or rather, not one but a series of birthdays, each marking a notable contribution of the Commonwealth of Massachusetts to the cause of public health.

The first link in the chain of development which brings us here tonight will presumably be commemorated in the form of a centennial celebration in the spring of 1950. It was on April 29, 1850, that Lemuel Shattuck of Boston, Nathaniel P. Banks, Jr., of Waltham, and Jehiel Abbott of Westfield presented to the General Court of Massachusetts a Report of a General

Plan for the Promotion of Public and Personal Health, which is, I believe, the most remarkable single document in the history of public health. Its plan for a sanitary survey of the state included practically everything our health departments are now doing, a hundred years later, including registration, sanitation, control of epidemic disease, control of tuberculosis, school health, tenement regulation, factory sanitation, institutional care of mental disease, control of smoke nuisances, education of nurses, supervision of food and drugs. It posed certain problems of public health which have been actually visualized by only a few of our most progressive health officers today. Thus, Shattuck and his associates stressed the importance of town planning and public housing: "We recommend that tenements for the better accommodation of the poor, be erected in cities and villages." They anticipated the very modern specialty of health education: "We recommend that persons be specially educated in sanitary science, as preventive advisers as well as curative advisers." They understood the

* Presented at a meeting in Boston, December 6, 1944, marking the 75th Anniversary of the founding of the Massachusetts State Board of Health, December 6, 1869.

value of what we should today call a local health council: "We recommend that a sanitary association be formed in every city and town in the State, for the purpose of collecting and diffusing information relating to public and personal health."

They clearly saw that the individual as well as the community had health problems which must be considered: "We recommend that individuals make frequent sanitary examinations of themselves, and endeavor to promote personal health, and prevent personal disease."

It was this remarkable report* which led to the establishment of the Massachusetts State Board of Health in 1869. This was not only our first state department of health in point of time. It was for many years first also in quality of achievement. As late as 1915, Chapin's survey of state health organizations gave Massachusetts a score of 745 points on a scale of 1,000, with New York earning 730 points in second place. At no time has Massachusetts failed to rank among the half dozen leading state health organizations of the United States. I should like to think of it as "our" state, rather than "your" state in the long view; for I and my ancestors in the direct male line were citizens of this Commonwealth for nearly three hundred years—until I was tempted as a missionary to the heathen to carry the Massachusetts gospel to your neighbors in New York and Connecticut.

Perhaps the most supremely brilliant period in the always distinguished pages of the annals of this department

was the last decade of the 19th century. Following a reorganization in 1886, Dr. Henry P. Walcott became chairman of the board; and a new engineering department was established under the guidance of Hiram F. Mills. This was just at the moment when the new knowledge of bacteriology was transforming the empirical sanitation of an earlier day into an exact science; and, through intimate coöperation with the Massachusetts Institute of Technology, an extraordinary galaxy of genius was at hand to apply this novel science to the problems of public health in Massachusetts. William Ripley Nichols, Thomas M. Drown, and Ellen H. Richards in chemistry, Theobald Smith, William T. Sedgwick, E. O. Jordan, Gary N. Calkins, and George C. Whipple in microbiology, Frederick P. Stearns, George W. Fuller, and Allen Hazen in engineering—never in the history of sanitary science has there been intimate association between so many men who were already world famous or were to become so.

It was my rare good fortune to enter the field at the turn of the century and to serve in a humble capacity on the periphery of this great group. While teaching under Sedgwick at M.I.T., I served for four successive summers (1899–1902) as assistant in the Engineer's Office of the State Department of Health—so that you will perhaps permit me to speak of "our" department, as well as of "our" Commonwealth. I knew all the men listed above with reasonable intimacy (except Nichols, Drown, and Stearns, who had left the organization before my day). I gazed in awe at Dr. Henry P. Walcott, an Olympian figure, embodying all the large and none of the petty qualities presented in Marquand's picture of Old Boston, guiding the destinies of Harvard with his right hand and of Massachusetts with his left (I think the attribution of "right" and "left"

* One of the most prized volumes in my library is a copy of this great report with a long-hand letter of transmittal from Shattuck to the Mayor of Providence which was thrown on a dump many years later, picked up by some discerning citizen and given to Charles V. Chapin and inscribed and presented to me by Dr. Chapin, thus bearing the names of two of the outstanding leaders in American public health.

is properly adjusted to relative values as he saw them).

At least three specific contributions of the Massachusetts State Board of Health at this time proved to be of major national importance and had repercussions far beyond the borders of this continent.

The first of these was the establishment in 1886 of the Lawrence Experiment Station. Here, for the first time, the combined resources of chemistry, bacteriology, and engineering were applied to the problem of sewage treatment, and Part II of a special report issued by the Board in 1890 is the cornerstone of all subsequent development in this art. The principle of biological sewage treatment, the transformation of putrescible organic materials to nitrates by bacterial oxidation, was here elucidated; and the Lawrence studies led at once to the development of intermittent sand filter treatment and—indirectly—through exchange of information between American and English workers—to the evolution of the trickling filter and the activated sludge process.

Meanwhile, Sedgwick, as Consulting Biologist to the Board, was clinching the case for improved sanitation and was developing the technique of the new art of epidemiology—of which he has justly been called the father, so far as this country is concerned. The report of the Massachusetts State Board of Health for 1892 contains three outstanding classics from his pen; the first conclusively analyzed water-borne epidemic of typhoid fever worked out on this side of the Atlantic at Lowell and Lawrence*; the first clearly defined milk epidemic of typhoid, at Springfield; and a small outbreak due to prosodemic spread by contact, food,

and flies at Bondsville. This volume ranks with the epoch-making studies of Snow and Budd in England.

Finally, in 1894, came the establishment of the State Antitoxin Laboratory for the application of new knowledge to the practical control of disease by artificial immunization, ranking with the work of Biggs and Park in New York as a pioneer effort in a third major field of public health endeavor.

The work of the laboratory whose fiftieth birthday you celebrate, as it developed under the guidance of Theobald Smith, has been duly commemorated during the day's ceremonies. Nor does time permit analysis of the many and significant contributions made by the State Board of Health between 1900 and 1914 and by the State Department of Health since 1914. Commissioners Allan J. McLaughlin, Eugene R. Kelley, George H. Bigelow, and Henry D. Chadwick added luster to its record, and we hail Vlado A. Getting as their worthy successor. In at least two fields, tuberculosis control and cancer control, Massachusetts is today in the very forefront of the profession.

It seems proper for us to go back to the glories of the public health decade of the 1890's and to consider what we may learn from that experience for the years to come. History should be not merely a fascinating pursuit for our less active moments, nor—even in the case of a celebration like ours today—primarily the stimulus to a comfortable sense of pride and satisfaction. The most important value we can derive from a study of the past is a better sense of direction for the future.

What, in essence, did Mills and Sedgwick and the rest do in those creative days after the reorganization of 1886? They looked—as it seems to me—at the State of Massachusetts and they said to themselves: "Our job is to promote the health of the citizens of this state. What menaces their

* Flint's N. Boston (N. Y.) outbreak was probably but not certainly due to well water and the Plymouth, Pa., epidemic of 1885 was not analyzed with sufficient clarity and force to carry universal conviction.

health? If we can find the causes which make for ill-health, what can we do to remove those causes?"

These questions they answered in the terms of their day and generation. The most obvious causes of preventable disease and death in 1890 were epidemic germ diseases like typhoid fever and diphtheria; and the way to control those germ diseases was to dispose of sewage, to purify water, to pasteurize milk, to immunize against diphtheria. Our fathers in the faith found the road and followed it; so that typhoid fever and diphtheria and infant diarrhea have become medical curiosities in Massachusetts.

There is just one way in which we can pay real tribute to the pioneers of 1869 and 1894. That is, to apply the same courage and vision which they once displayed to the problems of today.

Between 1900 and 1940, the death rates of the Registration Area for typhoid and diarrhea and for diphtheria and the other acute communicable diseases were reduced more than 90 per cent; the death rate for tuberculosis, 77 per cent; the death rate for pneumonia and influenza 61 per cent. The tasks set for us by Mills and Sedgwick and Theobald Smith have been almost accomplished. On the other hand, the mortality from all other causes than those mentioned has fallen by only 16 per cent. Today 27 per cent of all deaths are due to diseases of the heart, 16 per cent to other conditions associated with the cardiovascular-renal complex and 11 per cent to cancer. This is the challenge of today. How shall we meet it?

It is obvious that the solution of these problems is not simple and that no complete solution is possible. The human machine, like all other biological mechanisms, is wound up to run for a certain number of years. As its primary source of energy is exhausted,

death inevitably comes; and this is, on the whole, a very sound arrangement, since it is the cycle of the generations which makes progress possible. We are still, however, far from the ideal set forth by that most fascinating of Boston physicians, Dr. Oliver Wendell Holmes, pioneer in the study of puerperal fever, teacher, poet, litterateur. The One-Horse-Shay which on the morn of its hundredth year

"went to pieces all at once—
All at once, and nothing first—
Just as bubbles do when they burst"

is a parable of a health objective still unattained. Mortalities from heart disease of 152 at ages 45-54 and of 426 at ages 55-64, and mortalities from cancer of 168 at ages 45-54 and of 370 at ages 55-64 (U. S. 1940) are evidences, not of normal but of premature degeneration.

The mortality from diseases of this type is no doubt indirectly influenced by certain of our standard public health procedures. What we do to control streptococcosis and syphilis will be reflected in lower death rates from heart disease years later. In the main, however, direct control of such maladies as heart disease and cancer depends upon early diagnosis and upon treatment or a special regimen of personal hygiene based on that diagnosis—in other words, on good medical care. It is strange to hear, as one sometimes does, physicians deprecating any attempt to deal effectively with the provision of preventive medical service on the ground that people must die some day, that they might as well die of heart disease as of anything else, and probably will die of heart disease anyway. We may grant these premises and yet fail to agree with the implied conclusion that medicine is rather a needless luxury. If ten years of useful life can be gained by postponing a fatal (or a crippling) termination from the age of 60 to the

age of 70, the gain is real and significant.

The provision of good medical care for all the people is, then, a definite objective for the intelligent health officer. He knows that the lower half of the population from an economic standpoint has more sickness than the upper half and actually receives only half the medical care which it needs—and which the well-to-do family enjoys. He recognizes that this lack of medical care can be met only in one of two ways—either through direct provision of medical care by the state; or through a system of prepayment (voluntary and unsubsidized in the higher income ranges, compulsory and subsidized by the employer in the lower income ranges); or by a combination of these two methods.

It is for these reasons that the American Public Health Association at its Annual Meeting in October, 1944, adopted a formal statement of policy which included the following statements:

"A national program for medical care should make available to the entire population all essential preventive, diagnostic, and curative services."

"Services should be adequately and securely financed through social insurance supplemented by general taxation, or by general taxation alone."

"The services should be financed on a nation-wide basis, in accordance with ability to pay, with federal and state participation, and under conditions which will permit the federal government to equalize the burdens of cost among the states."

"A single responsible agency is a fundamental requisite to effective administration at all levels—federal, state, and local. The public health agencies—federal, state, and local—should carry major responsibilities in administering the health services of the future . . . with the advice and counsel of a body representing the professions, other sources of services, and the recipients of services."

"Private practitioners in each local administrative area should be paid according to the method they prefer, i.e., fee-for-service,

capitation, salary, or any combination of these."

"The principle of free choice should be preserved to the population and the professions."

In this document,* the American Public Health Association has given us a clear and courageous program. It is peculiarly fitting that this Association has been the first of the expert professional groups concerned to formulate such a program; for the health officer represents, in a unique degree, professional knowledge on the one hand and community responsibility on the other. The Hippocratic oath binds the practitioner to the highest standards of service rendered to those individual patients who call upon his skill. The health officer is a physician who has undertaken, in his oath of office, the more far-reaching responsibility of planning for the health of the community as a whole. This responsibility has been met—with modesty, but with a compelling sense of public duty—in the adoption of the policy formulated in New York last October.

The challenge to the health officer of 1894 was to see that new knowledge of bacteriology and sanitary science was applied in the purification of water and sewage, the pasteurization of milk, the development and application of sera and vaccines for the treatment and prevention of disease. The task was well done. The historian of 1994 will judge the health leadership of today by the extent to which it puts the new knowledge of preventive and constructive medicine to work in dealing with the health problems which are, in 1944, of paramount importance.

Therefore, the health officer who has in him the spirit of the pioneers will conceive that one of his primary re-

* Medical Care in a National Health Program. An Official Statement of the American Public Health Association. *A.J.P.H.*, 34, 12:1252-1256 (Dec.), 1944.

sponsibilities is to plan for putting the vast resources of modern medical science to work in his community. He should have the courage to make the facts of the situation clear to the lay public; and the statesmanship to secure the coöperation of the local medical profession in planning wisely so that quality of service can be insured—as it can only be assured—by the expert but coöperative direction of the professions concerned. To secure such coöperation will not, I suspect, be quite so difficult as the fulminations of the National Committee of Physicians might lead us to believe.

There are still wider vistas which confront the open-minded observer of trends in the field of public health. More and more, as the years pass by, we are realizing that health means more than a temporary postponement of the day when one's name is inscribed on a death certificate. Decreases in gross mortality rates will not be spectacular during the next half century. But health means *health*, quality and fullness of living; and in this respect progress can and must be great. Health includes mental and emotional health as well as continuance of the functions of heart and lungs. We know that nearly half of all the beds in all our institutions for the sick are occupied by patients suffering from mental and nervous complaints. We know that in the average family, handicaps due to emotional maladjustments are probably quantitatively equivalent to all the rest of the so-called physical handicaps from which such a family suffers. Mental hygiene is not a small sector of our problem, but more nearly half of it.

In the half century to come, then, the health officer must not be solely interested in syphilis and tuberculosis, or even in heart disease and cancer. He must, more and more, concern himself with nutrition in its subtle and com-

plex influences upon vigor and efficiency and satisfaction. The absence of vitamins or iodine or fluorine in the diet of a community may seem as important as the presence of typhoid bacilli in its milk supply.

He must concern himself with housing, in its relations to the optimum physiological needs for warmth and coolness and light; to the avoidance of strain in the performance of household tasks and of the development of a sense of inferiority associated with life in a substandard dwelling; to the elimination of sanitary risks due to vermin and food spoilage and overcrowding; and to the control of the home accidents which kill 30,000 persons a year in the United States. He should lead in the elimination of substandard dwellings and participate actively in the planning for slum clearance, urban redevelopment, and low-rent housing.

He must concern himself with the living wage and with the provision of a due measure of social security, which is essential to both physiological and psychological health.

In other words, public health which in its earliest days was an engineering science and has now become also a medical science must expand until it is in addition a social science.

I do not underestimate the difficulties in the way of this new stage in the expansion of our professional tasks. As a social science, public health must cruise into waters which are new and stormy—and infested with sharks. The typhoid bacillus had no friends; but the insanitary tenement has many; and outmoded systems of medical practice seem to have a few. We shall need wisdom and intelligence to pilot our bark, and courage and determination to undertake the voyage.

Yet have we not still the temper of the reformer in the very life-blood of our tradition?

John Simon in his first report as Medical Officer of the City of London nearly a century ago had this to say:

In the great objects which sanitary science proposes to itself,—in the immense amelioration which it proffers to the physical, to the social, and indirectly to the moral condition of an immense majority of our fellow-creatures, it transcends the importance of all other sciences, and in its beneficent operation seems most nearly to embody the spirit and to fulfil the intentions of practical Christianity. Ignorant men may sneer at its pretensions; weak and timorous men may hesitate to commit themselves to its principles, so large in their application; selfish men may shrink from the labour of change, which its recognition must entail; wicked men may turn indifferently from considering that which concerns the health and happiness of millions of their fellow-creatures. To such men an appeal would indeed be useless. But, to the Corporation of the City of London—whether as assembled in its entire Parliament, or as represented within the confines of this Court—to the Corporation which, on so many occasions, has attained patriotic ends by great expenditure and sacrifice; to men earnest, strong-minded, and practical, having much consideration for their fellow-creatures, and having little consideration for personal toil or municipal expense, so only that they may fulfil a great Christian duty, and may confirm the gratitude with which history records their frequent services to our kind;—to such a Corporation, and to such men, the Country looks for the perfection of a sanitary scheme which shall serve as model and example to other municipal bodies undertaking the same responsibility; and to such a Corporation and to such men do I, likewise, your Officer of Health, respectfully and confidently address a well-founded appeal.

The sanitary leaders of Massachusetts, half a century ago, used less florid language; but theirs was the self-same spirit. Mills and Smith and Sedgwick transcended the currently-accepted responsibilities of their time. They saw the evils which actually existed; and they attacked them with vision and with courage and with success. The health officers of 1944 must meet the specific challenges of the present hour with the same spirit.

I was talking some months ago with

a health administrator who raised the question how the work of the health officer could be so dramatized as to touch the popular imagination and arouse in the public mind a sense of what health service really means. The famous picture by Fildes of the doctor by the bedside has brought to millions a sense of what the service of the practitioner means to the individual. Can the benefits conferred by a good health department be similarly vivified and warmed by the emotional color which their values truly justify?

Generally speaking, I think the answer is "No." It is difficult to dramatize what does not happen. The fact that purification of a water supply has saved thousands of lives is a statistical fact but not an emotional appeal. Drama depends on a conflict; and a conflict between forces which can be expressed in tangible form. In the social aspects of public health, however, there are opportunities for just and pertinent dramatization; there are conflicts for the body and soul of man which are concretely representational. When Bundesen fought the milk dealers and the brothel keepers of Chicago, there was drama. When Craster of Newark and Graves of Memphis and Williams of Baltimore attacked the slum, there was drama. When La Guardia and Stebbins launch the program of prepaid medical care in New York City there will be drama. (Wherever La Guardia is, there is always drama.) So, if the tasks of the new social public health are dangerous and difficult, you will find powerful allies at your side.

I do not, however, urge you to attack the tasks of the future in public health because it will be popular to do so. Nor do I wish to stress the fact that the future status of our profession depends on your answer to the social challenge—though such is the fact. If we continue merely the

routine activities of the past, the health officer will be merely a cog in an essential but undistinguished administrative machine; only with a bold approach to meet the new demands of the time shall we earn the sense of real achievement which comes to the pioneer.

But my real appeal is to your sense of the responsibilities of the high office to which you have been called. To the health administration of a city, a state, or a nation, its citizens turn for leadership. So far as health is concerned, it is to you that the returning soldier will look for a world in which he can live a life worthy of his sacrifice. It is to you that the mother will look for a world in which her children can grow up to the fulness of being. You stand

on the watchtower as their trusted guardian. If your eyes are open you realize that the conditions of such a world include more than a safe water supply and a tuberculosis sanatorium and a child welfare clinic and a diphtheria immunization program. They involve also a decent standard of living for all the people in the community. They include a minimum wage, food, housing, medical care, social security. You have the clear duty of reporting what you see from your watchtower. You should be not only the prophets but the guides into that Promised Land where blossoms "the tree of life, which bare twelve manner of fruits, and yielded her fruit every month: and the leaves of the tree are for the healing of the nations."

Typhus Commission Medal

The Typhus Commission Medal was recently awarded to Brigadier General Leon A. Fox, MC, USA, for "exceptionally meritorious service rendered first as director and later as field director of the United States of America

Typhus Commission." According to *Science*, General Fox directed the Typhus Control Project at Naples in December, 1943, which in one month brought the epidemic of that disease in southern Italy under control.

Bacteriological Improvements Obtained by the Practice of Break-Point Chlorination*

A. E. GRIFFIN, PH.B., AND N. S. CHAMBERLIN

*Assistant Director, and Sanitary Chemist, Technical Service Division,
Wallace and Tiernan Company, Inc., Newark, N. J.*

NO other process of water purification has had such an astounding growth as the disinfection of water by chlorination. This growth began when bleaching powder or hypochlorite of lime was applied to the Jersey City water supply on a continuous basis at Boonton, N. J., in 1908. The outstanding results obtained with the process and the conditions existing at the time were contributing factors to this rapid expansion.

Experiments conducted at the time by eminent water purification and public health authorities such as Professors Mason, Kinnicutt, Park, Westbrook, Drs. Leal and McLaughlin, and Mr. Johnson, on the coliform and typhoid organisms in water gave identical results—in each instance the organisms were destroyed by bleach. To them it was surprising that the small quantities of hypochlorite used were sufficient to kill pathogens.

As a result of the success obtained by these experiments and the acceptance of the disinfection process by the courts, attention was immediately focused upon the process. The interest created was without doubt materially accelerated by the numerous typhoid fever

epidemics then so prevalent in the United States. The enthusiasm for the disinfection process was best expressed by Leal, one of its most ardent advocates, who in 1909 said that "the practical application of the use of bleach for the disinfection of water supplies seems to be a great advance in the science of water purification. It is so cheap, so easy and quick of application, so certain in its results, and so safe, that it seems to cover a broader field than does any other system of water purification yet used. It cannot but conduce to the economic and physical benefit of mankind."

As one looks back upon that era, the growth of the process of treatment was almost phenomenal, particularly when compared to the processes of water purification then in existence. Slow sand filtration was installed at 30 water treatment plants between 1875, the year of its introduction in this country, and 1914, a span of 39 years. This was at the rate of less than one plant a year. Rapid sand filtration, often in conjunction with coagulation, was installed in 450 water treatment plants between its introduction in this country in 1885 and 1914, a span of 29 years. This was at the rate of about 15 plants a year. By comparison, the disinfection of water by bleaching powder or hypochlorite of lime was installed as a

* Presented before the Engineering Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

process of treatment in over 300 water treatment plants from late 1908 until 1913, a span of 5 years. This represents a growth of 75 plants per year.

By 1913 it was evident that chlorination, as a process of water purification, was firmly established. The introduction of liquid chlorine during this same year gave further impetus to its use. Thereafter, the process expanded so rapidly that it became impossible to ascertain definitely the number of plants using chlorination. By its use tremendous bacteria reductions were being obtained and the typhoid death rate dropped to an unexpected low. For many years thereafter nothing more, from a bacteriological standpoint, was desired. Chlorination of the water to a small definite chlorine residual sufficed to produce the spectacular results.

With increased experience in chlorination practices it was noticed, on occasion, that coliform organisms were growing in the distribution system, oftentimes in the presence of substantial chlorine residuals. In some instances, as outlined by Cox¹ "borderline" chlorination, now identified as marginal chlorination, should be considered as positively dangerous. He substantiates this by pointing out the experiences in City X where, during the course of a typhoid epidemic, chlorination apparently was removing coliform organisms, but the "paracoli," that is, the "late lactose fermenting organisms," were not destroyed and were isolated from the distribution system. He further shows that in another instance, in City Y, during the course of a gastroenteritis epidemic, the chlorine dosage was carried as high as 4.75 p.p.m., and then reduced to a residual of 0.4 with sulfur dioxide in an effort to stem the epidemic. In the latter case there is no record of the effect of such treatment on the "paracoli" concentration. That such organisms existed there can be little doubt,

for an examination of more recent records from the same city shows that a considerable portion of the 10 ml. tubes planted from distribution samples have contained nonconfirming gas-forming bacteria.

Coincident with the development of tests showing the relative concentration of free available chlorine and chloramine residuals, the application of chlorine, at City Y, was raised from an average of 1.5 p.p.m. to 4.2 p.p.m. This increase produced a free available chlorine residual of 1.0 p.p.m. in the water leaving the plant. This change in operating procedure brought about such a drastic reduction in "paracoli" content of the city water that until currently it is the exception rather than the rule to find even a cloudy tube in the distribution system samples.

Repeated experiences of similar nature prompted the study by Levine, Carpenter, and Coblenz,² in 1938 and 1939, of 162 cultures from 97 water samples from five cities. This was undertaken to study the characteristics of organisms (presumably of the coliform group) growing in the reported presence of chlorine residuals. They concluded that chlorine residuals of 0.2 to 0.04 p.p.m., as determined by the orthotolidine technique of that time, could not be considered a dependable criterion of adequate water sterilization.

Faber³ in 1939 commented "There is an insistent demand for the production of water which will meet standards of bacterial quality even more rigid than those standards adopted by the U. S. Treasury Department." The controlled super-chlorination process, known as break-point chlorination, offered, according to Faber, one means of attaining a higher standard of bacterial purity in the finished product.

These observations by men experienced in the field of water purification seem to have represented the general opinion prevailing in the field at that

time and served as a basis for research work into the killing velocity of free available chlorine residuals versus chloramine residuals, the mechanism of the reactions between chlorine and ammonia in dilute solutions, and methods of control to obtain and maintain the various types of residuals.

Schmelkes, Horning, and Campbell⁴ showed that free available chlorine will kill bacteria within a very few seconds, and a year later Weber, Bender, and Levine⁵ reported that free available chlorine will kill spores of *mentiens* within 3 minutes but that chloramines of the same magnitude require up to 90 minutes. This work was quickly confirmed by Streeter⁶ on a scale more nearly approximating plant operating conditions. Concurrently with these researches along bacteriological lines Laux,⁷ Laux-Nickel,⁸ Keineth,⁹ Marks and Glass¹⁰ Moore,¹¹ and Hallinan¹² developed simple and usable tests for the detection and differentiation of free available chlorine and chloramine residuals. These tests paved the way for the production and control of free available chlorine residuals without the earlier drawbacks of over-chlorination which so often leads to the necessity of dechlorination.

Out of this abundance of new information regarding the application and control of chlorine there arose gradually a new concept of chlorination known as "Break-Point."¹³ This process takes advantage of the fact that the production and maintenance of free available chlorine residuals will produce superior bacteriological results and often will produce a better tasting water. Thus in 1939 and 1940 the stage was being set for a real advance toward the complete eradication of bacteria in water supplied to the public.

The reluctance to increase the rate of chlorine application several fold, even though this might not amount to more than 1.0 or 2.0 p.p.m., was

quickly dispelled by the experience of one operator¹⁴ who applied 110 p.p.m. and thereby rendered an otherwise unsafe and undrinkable water, not only safe but usable. But in 1940 insufficient data had been accumulated to make a true evaluation of the real worth of free available chlorine residuals. Now that the process has been in use at many plants over a period of years, such data are available and have been tabulated for a number of plants.

Examples of these are presented below. They indicate the sort of results than can be obtained under a variety of operating conditions.

Throughout the test and on the various charts the term Index per 100 ml. has been used to designate the density of gas-forming bacteria. Although it is recognized that such a method may not be precise from a mathematical viewpoint it is particularly well adapted to the comparison of thousands of results. An index of zero, wherever it appears on a chart, means that no gas was produced in any of the samples tested during that period.

CASE A

Water for this plant is obtained from a reservoir into which a small amount of domestic waste is discharged. The

TABLE 1

Case A—Bacteriological Data

Finished Water (At Laboratory Tap)

| Year | 10 ml. Lactose Broth Tubes | | | Per cent Showing Gas |
|--------|----------------------------|---------------|------|----------------------|
| | No Planted | No 48 hr. Gas | | |
| 1939 | 1,600 | 158 | 9.5 | 9.4 |
| 1940 | 1,640 | 196 | 12.0 | |
| 1941 * | 945 | 45 | 4.8 | |
| 1941 * | 690 | 0 | 0 | 0 |
| 1942 | 1,485 | 0 | 0 | |
| 1943 † | 1,135 | 0 | 0 | |

* Break-Point Chlorination started August 1

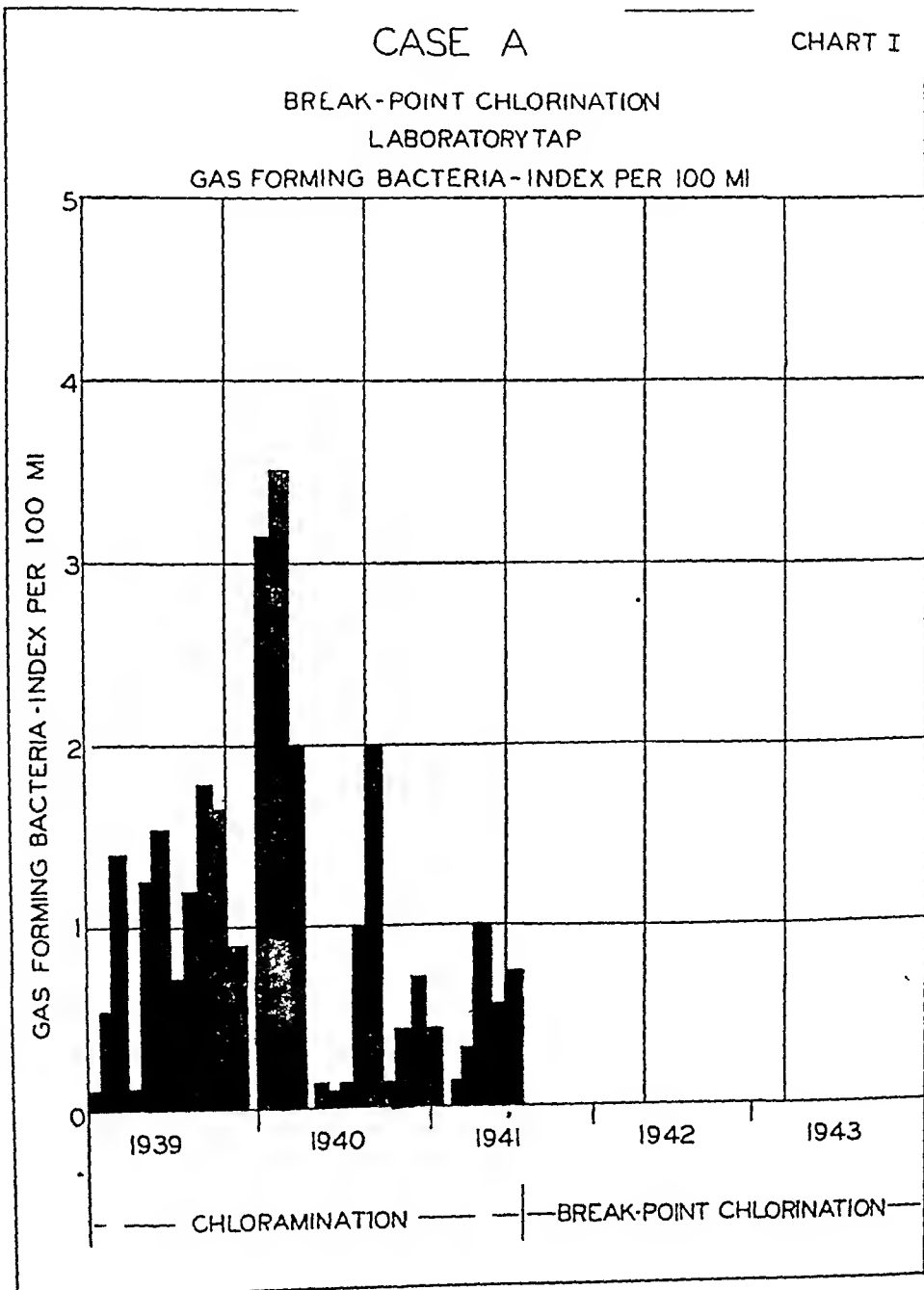
† For the year through August 31

plant capacity is 2.5 m.g.d. Operation is intermittent. Treatment consists of coagulation with alum and lime followed by settling and filtration.

The bacteriological results, before and after the adoption of break-point chlorination, show the excellent results that can be obtained when the plant is properly controlled to produce and maintain a free available chlorine resid-

ual throughout a plant and into a distribution system.

In Table 1 it is to be noted that during the 2½ years prior to the use of break-point chlorination i.e., during the time when chloramination was being used, 9.4 per cent of all of the 10 ml. broth tubes planted on the finished water, as sampled at the laboratory tap, showed gas formation. During the



first $2\frac{1}{2}$ years of break-point chlorination not a *single* 10 ml. portion of the finished water, as sampled at the same point, produced gas.

The gas-forming bacteria index per 100 ml. for the finished water for the same periods is shown on a monthly basis in Chart I. It is to be noted that the gas-forming bacteria index per 100 ml. is zero for each month since break-point chlorination was started at this plant in 1941. The chlorine requirement that made possible these results is most interesting. During the chloramination period shown, the chlorine applied to the raw water averaged 2.49 p.p.m., and the chloramine residual was often as high as 1.00 p.p.m. in the finished water. During the break-point chlorination period shown the chlorine applied to the raw water averaged 3.67 p.p.m. and the free available chlorine residual in the finished water averaged 0.75 p.p.m. By increasing the chlorine applied to the raw water by less than 50 per cent or about 1.20 p.p.m. and eliminating the ammonia applied, it has been possible to alter the residual from one that is definitely chloramine to one that is definitely free

available chlorine. The change has resulted in the eradication of the gas-forming bacteria, as indicated by the absence of gas in all 10 ml. portions of the finished water planted in lactose broth.

CASE B

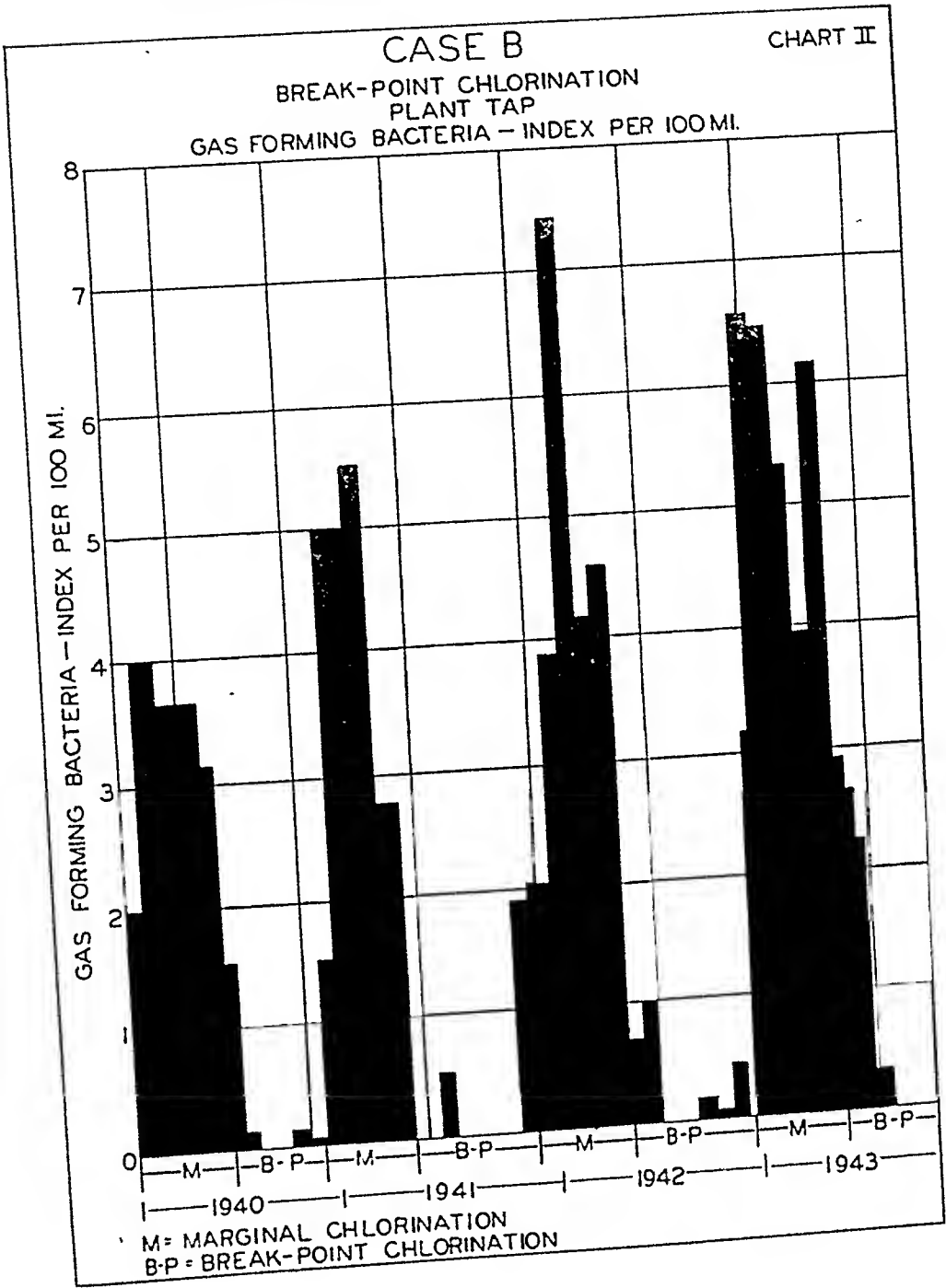
Water is obtained from a sizable river located near one of the more highly industrialized sections of the country. The river receives considerable domestic and industrial pollution. The plant capacity is 5 m.g.d. Operation is continuous. Treatment consists of coagulation with lime followed by settling and filtration. Occasionally lime and carbon are added. Pre- and post-chlorination have been common practices for many years. In this there has been no change as operation has shifted from marginal to break-point chlorination and back again.

One of the most striking examples in bacteriological improvement through the use of break-point chlorination is shown in this case. At this plant marginal chlorination is used during the winter months and break-point chlorination during the summer months when

TABLE 2

Case B—Bacteriological Data Finished Water (At Plant Tap)

| Periods | 10 ml Lactose Broth Tubes | | |
|--|---------------------------|----------------|----------------------|
| | No. Planted | No. 48 hr. Gas | Per cent Showing Gas |
| <i>Marginal Chlorination</i> | | | |
| January, 1940, through May, 1940 | 650 | 212 | 32.6 |
| December, 1940, through April, 1941 | 645 | 249 | 38.6 |
| December, 1941, through April, 1942 | 630 | 299 | 47.5 |
| December 17, 1942, through May 15, 1943 | 640 | 348 | 54.4 |
| Total of Four Periods | 2,565 | 1,108 | 43.2 |
| <i>Break-Point Chlorination</i> | | | |
| June, 1940, through November, 1940 | 750 | 21 | 2.8 |
| May, 1941, through November, 1941 | 955 | 28 | 2.9 |
| May, 1942, through December 16, 1942 | 970 | 29 | 3.0 |
| May 16, 1943, through September, 1943 | 575 | 85 | 14.8 |
| Total of Four Periods | 3,250 | 163 | 5.0 |
| Total Omitting First Month of Each Period | 2,740 | 104 | 3.8 |
| Total Omitting First Two Months of Each Period | 2,245 | 41 | 1.8 |



taste and odor control is required. If the primary reason for such treatment had been one of bacteriological control, there is little doubt, from the results obtained (see Table 2 and Chart II) that break-point chlorination should have been used at all times, since the gas-forming bacteria index per 100 ml. of the raw water usually varies through-

out the entire year from 5,000 to 10,000.

In Table 2 it is to be noted that during the four periods of marginal chlorination, 43.2 per cent of all of the 10 ml. broth tubes planted on the finished water, as sampled at the plant tap, showed gas formation. In comparison with this it is to be noted that only 5.0

per cent of all of the 10 ml. broth tubes planted on the finished water, as sampled at the same point, produced gas. The chlorine requirements during the periods of marginal chlorination, when the residual was chloramine, averaged 1.44 p.p.m. During the break-point chlorination periods the chlorine requirements averaged 5.49 p.p.m. The increased use of chlorine may have been a factor for not using the process on a continuous basis, although it seems that the improvements accomplished, although not excellent in regard to the percentage of tubes still showing gas, was worth the effort and should not be measured in dollars and cents.

Normally, when a plant is on break-point chlorination the percentage of total 10 ml. broth tubes showing gas is much less than 5.0 per cent. In this particular case, the percentage of tubes producing gas would have been much less had the plant stayed on this method of treatment continuously.

Evidence of this is furnished both in Chart II and Table 2. In Chart II, showing the gas-forming bacteria index per 100 ml. on the finished water on a monthly basis, it is indicated that the plant was on break-point chlorination for a total of 25 months during the four periods under consideration. For 11 of the 25 months the index was zero, and, with the exception of the year 1941, none of these occurred during the month the plant went from marginal to break-point chlorination. In the remaining 14 months which had a positive index, 3 occurred during the first month of each period and 7 occurred during the first two months of each period. The elimination of the first month or even the first two months from the records during the periods of break-point chlorination should, therefore, result in a much better index; in fact, it should indicate the sort of results to be expected had

the plant been on this treatment continuously.

These data are compiled and appear on the last two sets of figures given in Table 2. By eliminating the number of tubes showing gas during the first month of each period, only 3.8 per cent of all of the tubes during the break-point chlorination periods showed gas. In other words, 36 per cent of all of the tubes showing gas during the four complete periods occurred during the first month of each period. By eliminating the number of tubes showing gas during the first and second month of each period, only 1.8 per cent of all of the tubes during the break-point chlorination periods produced gas. In other words, 75 per cent of all of the tubes showing gas during the four complete periods occurred during the first two months of each period.

One suggestion as to the cause for such a large portion of the gas-forming bacteria showing up during the first month of each period is that the control was improper due to operators refamiliarizing themselves with the control of break-point chlorination or new operators familiarizing themselves with the process of treatment for the first time. However, since the second month showed gas to a similar degree, it is evident that the cause must be found elsewhere.

Each time a plant goes on break-point chlorination, the free available chlorine is consumed in stabilizing the sludge in the settling basin, and in consuming organic matter in the filters during such time carbon is not in use. Each time a plant reverts to marginal chlorination the improvements established in a plant cease to exist. Each time the plant goes on break-point chlorination a free available chlorine residual is obtained in the raw treated water and for some time thereafter, but a free chlorine residual cannot be as easily maintained throughout the plant due to its continued consumption by the sludge on

the settling basin, the organic matter in the filters, and by carbon that may be applied.

Therefore, if a free available chlorine residual is maintained at the head of the plant, equal to that normally used when the so-called chlorine demand of the plant has been satisfied, it will be some time before a free available chlorine residual can be maintained throughout the plant due to its consumption in satisfying this demand. This demand can be satisfied quickly by using more than normal amounts of free available chlorine for the first few days of operation. Failure to do this, as in this case, results in the continued growth of more than normal numbers of gas-forming bacteria in the finished water during the first few weeks of break-point chlorination. This indicates that it is better to stay on break-point chlorination once it has been established than to use it intermittently.

CASE C

Water is drawn from a river containing large amounts of domestic and industrial wastes. The quality of the water is subject to wide and sudden changes. The average daily output from the plant is 10 million gallons. Operation is continuous. Treatment consists of coagulation with alum and lime followed by suitable settling and filtration. Chlorine is applied along

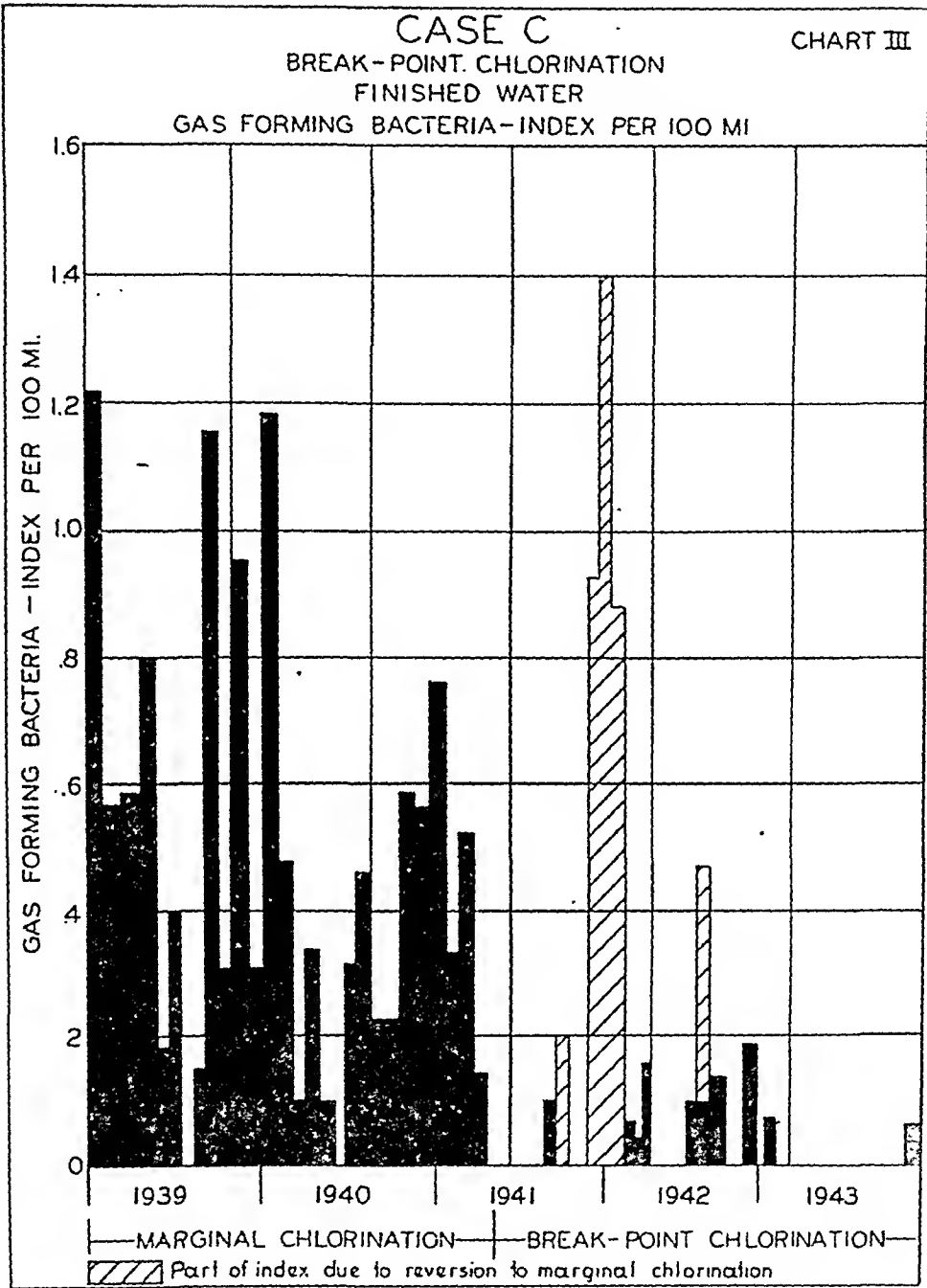
with the coagulating chemicals. Post-chlorination is used as required to maintain the proper magnitude of chlorine residual in the plant effluent. Pre-ammoniation is used to smooth out the free ammonia content of the water arriving at the plant. This has the effect of stabilizing the chlorine requirements. The process is known as induced break-point chlorination.

Although a well developed plan may call for continuing the plant on break-point chlorination, it occasionally happens, due to a variety of circumstances, that the plant must go off the process. That this should be avoided, if at all possible, is seen in Case C. Here it was necessary to revert to marginal chlorination during the installation of additional equipment. This plant went off of break-point chlorination in 1941 for 21 days in September, 23 days in November, and all of December. In 1942 this occurred again for 10 days in January and 4 days in July. The effect of these shut-down periods is reflected in the bacteriological results as indicated by the cross-hatched areas in Chart III.

It is to be noted here that, during marginal chlorination, 4.5 per cent of the finished water 10 ml. broth tubes showed gas. From the time break-point chlorination was started in May, 1941, until December, 1943, 1.7 per cent of the finished water 10 ml. broth

TABLE 3
Case C—Bacteriological Data
Finished Water

| Periods | 10 ml. Lactose Broth Tubes | | |
|---|----------------------------|----------------|----------------------|
| | No. Plated | No. 48 Hr. Gas | Per cent Showing Gas |
| Marginal Chlorination
January, 1936, through April, 1941 | 4,359 | 196 | 4.5 |
| Break-Point Chlorination
May, 1941, through November, 1943 | 4,215 | 81 | 1.7 |
| Break-Point Chlorination
and installation periods | 4,370 | 14 | 0.3 |



tubes showed gas. If the shut-down periods during this time are taken into account, only 0.3 per cent of all of the broth tubes for the finished water showed gas. In other words, when the plant was definitely on break-point chlorination it was removing more than 90 per cent of the gas-forming bacteria in the water not removed by marginal chlorination. These shut-

downs had, therefore, spoiled what otherwise would have been an excellent record of accomplishment and indicates that breaks in chlorination procedure should not be tolerated.

CASE D

Water for this plant is obtained from a small river. There are no industrial plants on the drainage area and only

TABLE 4

Case D—Bacteriological Data

Raw Water

| Year | 10 ml. Lactose Broth Tubes | | | |
|--------|----------------------------|-------------|-----------------|----------------------|
| | Raw Water Turbidity | No. Planted | No. 48 hr. Gas. | Per cent Showing Gas |
| 1937 | 208 | 205 | 85 | 41.6 |
| 1938 | 153 | 150 | 69 | 46.0 |
| 1939 | 198 | 175 | 62 | 35.4 |
| 1940 * | 135 | 110 | 29 | 26.4 |
| 1941 | 145 | 1,025 | 60 | 5.8 |
| 1942 | 244 | 1,750 | 40 | 2.3 |
| 1943 | 255 | 1,910 | 89 | 4.7 |

* Break-point started August 1, 1940

a small amount of domestic waste enters any of the streams thereon. The bacterial content of the river water at the intake is, however, quite high due to farm drainage. Turbidities are quite high. The capacity of the plant is 3.0 m.g.d. and operation is intermittent. Treatment consists of coagulation with alum and lime followed by settling and filtration. Activated carbon and copper sulfate are added occasionally to combat algal growths. Chlorine is added along with the coagulating chemicals and to the filtered water.

The results obtained at this plant, while by no means perfect, must, in the light of difficulties encountered, be considered good. During the four years preceding the adoption of break-point chlorination 38.3 per cent of all of the 10 ml. broth tubes planted showed gas. During the three succeeding years this figure dropped to 4.0 per cent (see Table 4).

It is to be noted that the new mode of operation was started about August 1, 1940, and that this had a very beneficial effect on the number of gas formers found during that year. In analyzing these data the turbidity of the raw water must also be taken into consideration because of its effect on

the overall operation of the plant. During 1942 and 1943 the turbidity of the river water was exceptionally high, but in spite of this the gas formers in the finished water remained exceptionally low. In former years a higher incidence of gas formers would have been expected.

The amount of chlorine required to accomplish these results was somewhat greater than formerly.

TABLE 5

Chlorine Applied p.p.m.

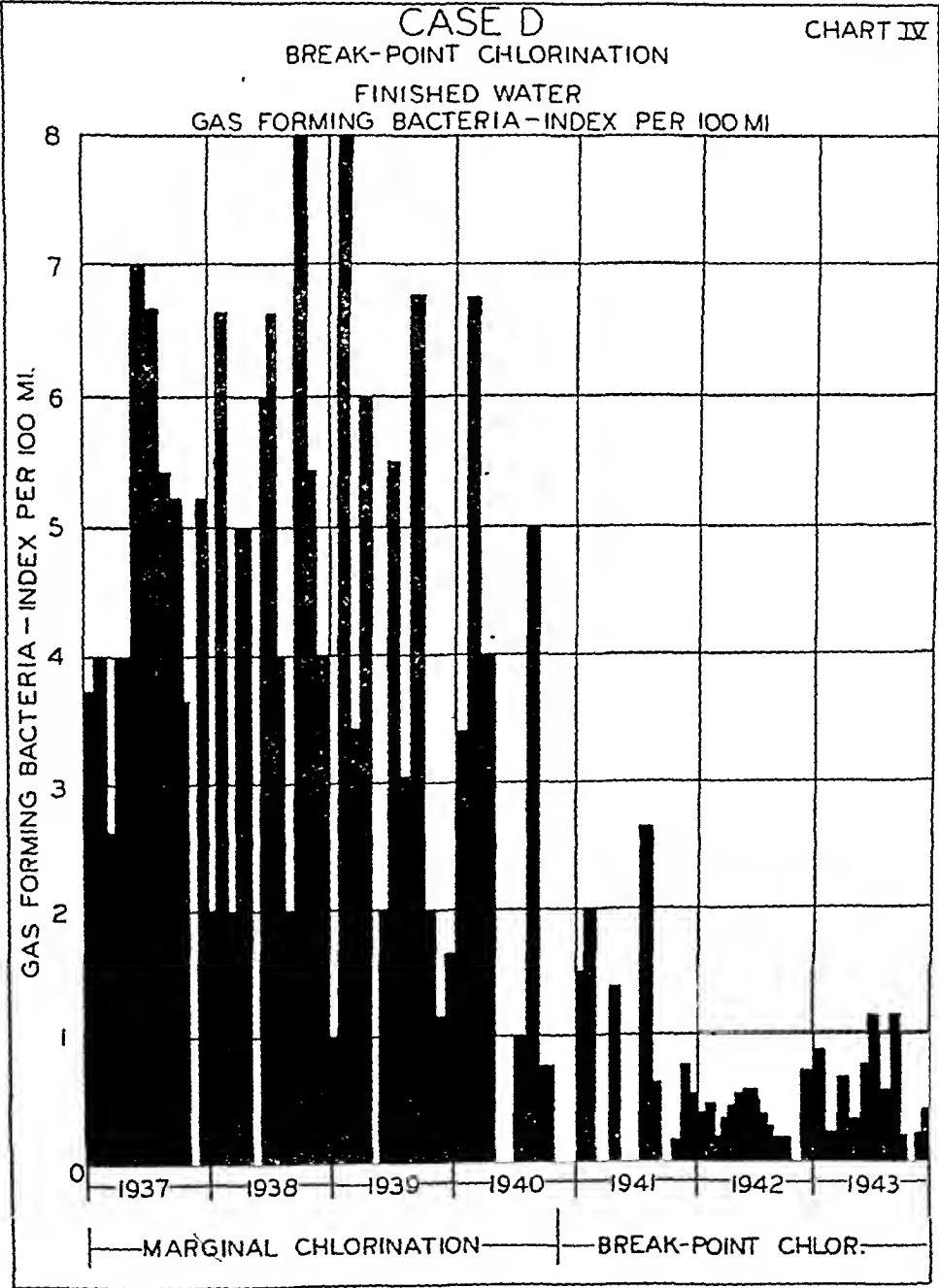
| | Prior to
August, 1940 | Subsequent to
August, 1940 |
|---------|--------------------------|-------------------------------|
| Maximum | 2.1 | 3.2 |
| Minimum | 0.3 | 0.7 |
| Average | 1.06 | 2.03 |

Chart IV shows the gas-forming bacteria index per 100 ml. by months from January, 1937, to December, 1943, inclusive. It is to be noted that prior, i.e., before break-point chlorination was started, the index of presumptives present rose and fell without relation to any single factor. Frequently none was present at any time during the month and at others they amounted to an index of 8.0. It is possible, although there is no confirming proof, that during the periods when none appeared the chlorine resid-

ual was in the form of free available chlorine.

Subsequent to August, 1940, an attempt was made to apply the chlorine in such amounts that the residual would consist of free available chlorine alone. That this was not always accomplished is self-evident. From August through December, 1940, good results were obtained, but for the next

six months difficulty was encountered. The tests employed were not specific and the operators at the plant did not understand the necessity of adding so much chlorine. From August, 1941, a better degree of control was obtained, but still the results were not as good as they could have been. Since January, 1944, results not shown, the operators have caught the spirit of the process



and the gas formers in the finished water are approaching the vanishing point. It is presumed that, had perhaps an average of 0.5 p.p.m. more chlorine been added during this entire period, all of the gas formers would have been removed. These experiences indicate the value of a full understanding of the control tests developed during the past few years and the necessity of maintaining adequate chlorination facilities to meet extreme fluctuations in chlorine demand.

In summary it appears from the data accumulated that:

1. It is possible to eradicate all late gas-forming bacteria from water.
2. Bacteria in water can be eliminated without impairing the taste and odor qualities of the water.
3. Continuous maintenance of free available chlorine residual is highly desirable.
4. Ammonia can be used to induce a break-point.
5. Induced break-point chlorination simplifies chlorination where the free ammonia content of the water is subject to wide and sudden variations.
6. Full use should be made of the control tests now available.

7. Adequate chlorinator capacity should be maintained to meet unexpected increases in chlorine demand.

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Admiral Stitt Receives Tropical Medicine Medal

The award to Rear Admiral Edward R. Stitt, USN, Retired, of the gold medal of the American Foundation for Tropical Medicine was announced in New York in February for his contribution in tropical medicine. The award was made by Colonel Richard

Pearson Strong, Director of Tropical Medicine at the Army Medical School, Washington, who received last year's award. Major General George C. Dunham, attached to the Office of the Coordinator of Inter-American Affairs, was a speaker at the time of the award.

Influence of Psychological Factors on the Nutrition of Children*

MILTON J. E. SENN, M.D.

*Associate Professor of Pediatrics in Psychiatry, New York Hospital, Cornell
University Medical College, New York, N. Y.*

THE state of nutrition of an individual is not fixed. Although the average healthy person becomes stabilized in body size and proportions during adolescence and remains so until the influences of aging become increasingly effective, the processes of nutrition being dynamic are in flux in all age periods. This may be stated more directly; namely, appetite and hunger, ingestion, digestion, absorption and assimilation of food, and elimination of waste products—which result in the state called nutrition—are ever changing. But the person in good health is unaware of these fluxations in metabolism and is conscious only of the end results, that is, whether he is well or poorly nourished. When deviations in these processes occur a person may become aware of it because of symptoms of illness or, when pathology is sustained, by detecting gross changes in general nutrition.

The agents which influence the processes of nutrition are many, and may be variously classified, as, for example, exogenous and endogenous, chemical and physical, cultural and economic, and so on. These influences are commonly interrelated and always con-

tain psychological elements as well. In fact, the psychological components may be the dominant forces which directly or indirectly bring about greatest change. For example, a family may have much money or little money, yet cultural habits determine how the money is spent for food because the persons buying and eating it have distinct *feelings* in the matter. It is also well known that emotional attitudes determine the amount of food taken and the rate of digestion. Affective states are now considered as part of the total reaction of the organism to external environmental situations as well as to internal conditions. Factors which are chemical or physical, or exogenous or endogenous, may bring about changes in physiological mechanisms which in turn set up emotional states, and if these are deep and of sufficient duration, contribute new chemical and physical effects through the endocrine and vegetative nervous systems. Studies in psychosomatic medicine have shown that no single emotion or special groups of feelings are responsible for modifying physiological states. Joy, sorrow, love, anger, hatred, resentment, and many others, all are capable of producing noteworthy effects. It is rather the degree and chronicity of the emotional tension which predicates the morbid effects.

Every intelligent person, however little his knowledge about physiological

* Presented before a Joint Session of the School Health, Maternal and Child Health, and Food and Nutrition Sections of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

Studies made at the New York Hospital and the Departments of Pediatrics and Psychiatry of Cornell University Medical College.

and psychological functioning, recognizes the close relationship between mind and body; one person learns from repeated experience that his own reaction to anxiety is loss of appetite, while to anger it is one of facial palor and sweating. One individual knows that his reaction to fear is vomiting, while another responds by frequency of urination. Each person seems to have his own pattern of reaction to emotional states. The adult seldom realizes that this specific pattern may have had its origin in infancy (and possibly in fetal life) and that the baby and child are even more susceptible to emotional influence than the full-grown person. It is the purpose of this paper to emphasize the impressibility of the infant and young child to emotional influences and to suggest measures of child care which will enhance opportunities for healthy growth and optimal nutrition.

The educator, physician, nutritionist, and the nurse working with infants and children, and especially parents, are in positions which lend themselves to careful and detailed long-term observations and study of growth and development, permitting appraisal of influences which help or hinder such processes. From reports of long-term studies of the development of children and from clinical observations in pediatric and psychiatric practice it is evident that feeding is the focus of the first emotional relationship between mother and child, and that the prenatal, neonatal, and later infancy periods are critical times for the individual, not only in terms of his nutrition, but in general well-being as well.

THE NEW-BORN PERIOD

The pediatrician in his practice repeatedly sees instances where failure to institute a good feeding pattern soon after birth continues to disturb baby and parent not only in eating, digesting, and eliminating, but in the areas of sleeping and general behavior as well.

It is discouraging to find then, that most physicians and nurses emphasize the importance of good prenatal care, but consider it satisfactory if the pregnant woman is cared for in terms of her health and diet without paying equal attention to her attitudes about infant care, especially feeding, and that psychological preparation for nursing and detailed breast and nipple care receive little or no attention.

The older pediatrician, and more recently the child psychiatrist, recognize the value of breast feeding for its psychological as well as nutritional influence. The mother who wants to nurse her baby and is physically able to do so realizes that the processes of nutrition function smoothly because she has enough milk to satisfy her baby's appetite and because she is able to be calm and happy while nursing him. The baby is satisfied because his hunger pains are relieved and because the affectionate cuddling and sucking satisfaction put him at ease, and even have a soporific effect so that food digestion and absorption proceed smoothly and uneventfully. The bottle fed baby may also have these benefits of a good start in life if his mother imitates carefully the techniques of good breast feeding.

Attitudes in the mother and the attending medical and nursing personnel, therefore, constitute the first psychological influences on nutrition of the child. If for some reason the newborn is unable to be satisfactorily fed, disequilibriums of nutrition rapidly follow which may produce severe systemic effects such as weight loss, dehydration, and diarrhea. Needless to say, such babies and their mothers cannot be either happy or secure and each becomes irritable, tense, anxious, sleeps poorly, and may have long periods of crying.

As the problems of early feeding are corrected, improvement will be reflected in a return to health, good nutrition,

and feelings of well-being, especially when attention is not focused solely on food prescription and eating. The new-born period thus constitutes a period of potential danger to physical and emotional health. If weathered successfully because good feeding practices are instituted by an understanding and loving mother who has insight into the needs of her child, there will result a relationship between them which will be supportive to both at future times of stress, and the feeding processes will become a matrix for healthy development not only in nutrition but in sleep patterning, and motor and social development.

FIRST SOLID FOOD—THREE TO SIX MONTHS

The new-born period is only the first of several phases when aggregations of problems in child rearing and development present themselves. The age of the first 3 to 6 months is recognized by the pediatrician as another vulnerable epoch in the life of the healthy baby when psychological states seem especially to influence eating, feeding, and nutrition. This is the time for introducing solid foods. The mother who is concerned only with caloric values and food intake soon learns from the resistance of her child that the techniques of offering him foods are as important as the chemical constituents of the foods. Force of an active or passive variety by the mother will stimulate fear, resistance, and anger, and result in little new food being ingested and probably much food being ejected. Emphasis on "training a child to eat" tends to provoke disinterest in food and eating, while calm experimentation when the individual baby is ready for this new growth experience will bring feelings of satisfactions in achievement to him and wonderment and delight to the mother, and again the bond in mother-child relationship is strengthened

and foreshadows success in the next period of feeding change.

WEANING AND OVEREATING

Although emancipation of the infant from his parents is a gradual and progressive period beginning at birth, the signs of struggle incident to freeing the organism from mother ties first become strongly evident in the period of weaning from breast and bottle. The ideal time of weaning is when the infant is ready for it, not only nutritionally but also psychologically, and, like all periods of his growth, this one may be delineated best by distinguishing characteristics in emotional, personal and social, and motor development rather than by chronological measurement.

At the time of weaning from breast and bottle, which is some time near the end of the first year of life or well into the second year, physical and psychological changes are extensive; emotionally the individual is no longer a little baby nor is he much of a child; he is in a sort of No-Man's-Land of Babyhood. Psychologically he is still very dependent upon his mother, yet he fights her for independence, and his daytime activity is frequently characterized by vacillations between being a tiny baby and a miniature adult. It is in this period, as in the later puberty and adolescence, that often we see food used as the symbol of emotions, and eating endowed with rich fantasy formation. For example, food offered by a mother to a child in distress is frequently accepted and found comforting by him since it appears as part of the mother herself; such a pattern of bringing relief to a child may have been started in early infancy without the production of noticeable changes in nutrition. It may become a habit at any time of childhood and adolescence, often arrived at quite accidentally and spontaneously when the individual finds easement of anxiety by the taking of food.

Changes in nutrition result when the emotional dysfunction is of long standing and when such a child becomes a chronic overeater. So often obesity brought about in this manner is contributed to by lessened physical exercise when the child withdraws from activity because of his feelings of unhappiness.

At any period of change in a child's life, whether it be at a time of undergoing a new experience such as starting school or adjusting to the birth of a sibling, food may be demanded as assurance of parental support and affection. In the life of the average child his need for such assurance is infrequent and of short duration and little change in the state of his nutrition results. But again where the individual feels more or less constantly in need of proof of parental love and where his feelings of anxiety, unhappiness, and insecurity are deep set and chronic and stimulate him to eat too much and too often, an imbalance of nutrition may become manifest as obesity. Similarly, an aggressive attitude on the part of an oversolicitous and anxious mother of a child who is convalescent from illness, forcing him to eat will often lead to a distaste for food and terminate in prolonged anorexia and malnutrition.

GUIDANCE FOR THE WELL CHILD

It is inevitable that the stresses and strains of normal growth cause problems in the life of every child and in his relationship with his parents. Some of these problems and the age periods of usual occurrence have been cited above. To the members of the American Public Health Association the important consideration is, "What may be done to insure a minimum of these problems, to prevent the occurrence of severe, prolonged, and recurrent difficulties, not only in nutrition, but in other aspects of development, behavior and personal-social relationships?"

After much reflection of this question, it appears to the experienced pediatrician that care of the mother before the baby's birth is most important and that this care should be of the type described previously; and, too, that the care of the well baby at birth and regularly thereafter for the first 3 and 4 years of his life is obligatory to insure the promotion of health and the prevention of maladjustments. Well baby care in private practice or clinic thus constitutes a cornerstone in the foundation of good health. Too often the well baby clinic is staffed by physicians and nurses who are inexperienced in the care of children; in fact, they are deliberately appointed to such positions because it is erroneously believed that they can do no harm to well babies and that the duties of the more experienced person should be reserved for the care of sick children because this demands mature judgment. There can be no disagreement with the latter supposition but it is incorrect, shortsighted, and harmful to think that the care of the healthy baby does not require the supervision of persons with good judgment and a vast store of knowledge and experience. The well baby clinic to function as a good instrument of preventive medicine and mental health should be staffed by people with excellent training in pediatrics, who have themselves become mature in their personal development and their professional thinking so that they are eager to seek out and learn about the facts of normal growth and development and are as stimulated by contact with healthy babies and children and their parents as they are by the most dramatic pathology in the sick.

The time for interview and examination in the well baby service must be ample for each physician or his nurse associate to listen in a careful and reasonably unhurried manner to the

biographical history of the baby and his immediate family, to examine the infant, to discuss progress or lack of it with the parent, and to answer his or her numerous questions about infant and parental health, and feelings and attitudes of parent and child, not only in terms of food and eating but of all habits and physiological and psychological needs. Such an interview cannot be carried out in 10 or even 30 minutes. The exact time will vary with each occasion and cannot be blueprinted. Suffice to say that a period of not more than 60 minutes and somewhere between 45 minutes and 1 hour per patient will prove satisfactory in most instances. An objection may immediately be raised by the personnel of the usual well baby clinic that this is too much time, that there are too many patients per physician for each to be given so much consideration; and that so much time is not needed anyway and is wasteful since the "giving of advice about feeding" can be done in a few minutes to any intelligent mother.

Experience has demonstrated that after the first and second visit with a mother and her new baby less time will be required since the mother will have fewer questions to ask because, through the physician's relationship with her and the child and his previous assistance to them, many queries will have been anticipated and many problems prevented. It cannot be too strongly emphasized that the care of an infant in a well baby clinic consists of more than "giving advice about feeding," and that whenever a patient consults a physician there is set up an interpersonal relationship which consists of more than the asking for and giving of advice about anything. This interpersonal relationship has possibilities for psychological growth in mother and infant which may influence greatly the

development to maturity of the child.

This paper cannot be concerned with a detailed analysis of physician-patient or nurse-patient relationships, but it can emphasize that the relationship is more than an intellectual association where a teacher in the form of a physician or nurse distributes answers to questions from a pupil in the instance of a mother. Physician, nurse, and parent are persons; each is as different in personality as in profession, and each has different feelings as they come together to discuss still another being, the infant, who is equally distinct and different.

While the giving of information and the discussion of procedures of infant care in detail are important and are the reasons for meeting with the physician, emphasis on content alone is insufficient; in fact, when this is done the real needs may be overlooked because too much information is given at one time and too many details are included, so that the parent leaves the conference in a confused state with the relationship to the physician weakened. The physician and nurse to be really useful must see a human being as an individual in relation to other human beings, and if the peculiarities of early life relationships are appreciated, the physiological processes will be safeguarded against development of psychopathology.

SUMMARY

In summary, the personalizing of clinical medicine in the prenatal and well baby clinics gives emphasis to the emotional and intellectual needs as well as to the physical requirements of parent and child and exemplifies the ideal in preventive medicine, not in narrow aspects of nutrition but in the broad aspects of human growth and well-being.

Accident Prevention— An Essential Public Health Service

Program Developed by Subcommittee on Accident Prevention,*
Committee on Administrative Practice,
American Public Health Association

AS a cause of death, accidents rank fifth in the United States, exceeded only by heart disease, cancer, cerebral hemorrhage, and nephritis. In age groups 2 to 28, accidents rank first. In 1944, according to the National Safety Council, they were responsible for 94,000 fatalities and an estimated 10 million disabling injuries.

Recognizing the vital part which organized accident prevention activities can play in reducing mortality and morbidity, the Committee on Administrative Practice has created a Subcommittee on Accident Prevention. Since 1942 this group has explored the field of accident prevention, giving special attention to the part which public health agencies are now playing in this field.

The subcommittee has found that rather well developed organized activities leading to the prevention of industrial and traffic accidents have been undertaken by official and nonofficial agencies. It is noted, however, that insufficient organized attention has been given to the prevention of home accidents. These accidents alone represent the ninth cause of death in this

country, and were responsible in 1944 for 30,500 fatalities, one-third of all accidental deaths; and an estimated 5 million disabling injuries, about half of all such injuries.

The subcommittee believes that the prevention of home accidents represents one of the major untilled fields of public health. It further feels that public health agencies, particularly official health departments, are in a very advantageous position and are probably best equipped among public agencies to undertake active leadership and to develop organized approaches to the prevention of home accidents. These agencies have well developed educational techniques and existing home and community contacts through a professional staff, which make them peculiarly suitable for activities in this field. In all probability deaths from accidents lend themselves to control more fully than do any of the other leading causes of death.

A study of the manner in which accident prevention engages the attention of state health organizations has been made by the subcommittee and published by the American Public Health Association.* Five state health organizations, namely New York, Minnesota, New Jersey, Illinois, and Kan-

* Subcommittee on Accident Prevention, Donald B. Armstrong, M.D., Chairman, W. W. Bauer, M.D., D. A. Dukelow, M.D., Thomas Fansler, F. Ruth Kahl, R.N., Edward S. Rogers, M.D., Ernest L. Stebbins, M.D., Paul F. Stricker, Elizabeth S. Taylor, R.N.

* Accident Prevention Engages the Attention of State Organizations. Reprinted from "The Spotlight," January, 1944. Reprints available.

sas, have active programs. About 300 state, county, and local health departments have been asked by the committee to outline their past and current activities in accident prevention. From a study of data assembled, the following conclusions have been reached.

1. Health departments on the whole are now doing very little as regards actual or contemplated studies in the home accident field.

2. Some casual educational work is being undertaken, generally in coöperation with other agencies and frequently through nursing staffs.

3. There is considerable awareness of the importance of the field and the logic of health department participation in it. There is also evidence of a desire for suggestions and information which health departments can utilize in connection with integrating safety with health educational activities.

Based upon its study, therefore, the subcommittee presents a brief review of the kind of activities which should be undertaken by official health agencies to bring about an effective working plan aimed toward the prevention of home accidents. This review refers primarily to activities on the local level. It is the opinion of the subcommittee, however, that county and state health departments are in a unique position not only to stimulate home safety progress by local health departments, but to undertake county and state-wide activities with the same basic objectives in view.

INTEGRATION

Home safety activities can be developed most effectively by health departments if integrated with existing educational and other activities of the department. In many instances, such integration can be effected in the routine of the following divisions:

1. Vital Statistics
2. Public Health Nursing
3. Sanitary Inspection
4. Health Education
5. Maternal and Child Health

6. Food and Drug Control (house poisoning)

7. Industrial Hygiene Bureau (employee "off-the-job" safety program)

8. Housing Bureau

9. Bureau which licenses boarding homes for children, and other facilities

FACTUAL DATA

There is need of more epidemiological study of the home accident problem, as a basis for the development of effective preventive approaches. Such studies, particularly when conducted in a specific locality, should indicate the importance of accidents as a cause of mortality and morbidity and should provide pertinent data for use in the preventive program of the area.

Considerable information is usually available through vital statistics channels. It will, however, require additional analysis and interpretation. In general, there is very little, if any, existing procedure for the reporting and study of nonfatal home accidents. An exploration into the field of hospital morbidity records and a consideration of the need of spot surveys and community-wide studies will be necessary in order to obtain a comprehensive idea of the morbidity aspects of home accidents. It seems logical that health departments, in collaboration with safety agencies, will need to develop standard forms for the reporting of fatal and nonfatal home accidents, comparable to those utilized for the reporting of traffic and industrial accidents.

PERSONNEL TRAINING

In order that the health department personnel, including nurses, inspectors, health educators, and others who come in close contact with the public, may be fully conversant with the cause of home accidents and proper preventive measures, a special home safety in-service course may be desirable. In other instances, home safety may be integrated effectively with in-service health train-

ing courses. A manual based on a recent Home Safety In-Service Course conducted by the New York City Department of Health, is being prepared and will be published and distributed by the National Safety Council.

DIRECT CONTACT THROUGH HEALTH DEPARTMENT PERSONNEL

A systematic plan of education through personal contacts by nurses, inspectors, and others will prove an effective means of stimulating personal interest in home safety. Such a plan may include the health department employee's observations of unsafe conditions and practices and his constructive comment regarding proper preventive measures. It may also include the encouragement of home inspections and the distribution of inspection blanks, booklets, etc. In addition, home visits afford an opportunity for the health department employee to note hazardous conditions beyond the control of the resident and to report such conditions to the proper city departments.

DIRECT CONTACTS THROUGH OTHER AGENCIES

The health department is in a position to encourage local medical societies, visiting nurse associations, social service agencies, and other groups having direct contact with the home to stimulate physicians and other professional personnel to emphasize accident prevention in their home contacts. In many areas the health department may consider it desirable to take the initiative in organizing a planning committee of such groups.

GENERAL PUBLIC EDUCATION

Many health departments will find

it advantageous to use accepted measures of general public education in connection with home safety programs. These activities may supplement or be integrated with health educational activities. They will include, for example: the conduct of neighborhood meetings; the development of effective home safety displays in health centers, department store windows, etc.; the showing of films; the general distribution of literature and posters; the preparation of news releases and press items; the use of radio and other measures which can be developed advantageously in the local community. The health department, with appropriate aid from other official and private agencies might set up a well rounded home accident control demonstration in a selected area of the city.

COÖPERATION OF OTHER AGENCIES

In many instances the health department will be in a position to initiate or aid in the development and conduct of community-wide home safety educational programs, with the coöperation of other city authorities such as the schools, police, fire, and building departments and with the coöperation of industrial, business, educational, labor, and other nonofficial agencies interested in the subject.

REGULATIONS AND ENFORCEMENT

In coöperation with architects and the building, fire, and police departments of a city, the health department is in a position to undertake a study of the need for additional regulations and for the more effective enforcement of these regulations with respect to the construction, design, and maintenance of buildings used as residences.

Suggested Home Safety Activities*

For Consideration of Local Health Departments

THE Subcommittee on Accident Prevention of the Committee on Administrative Practice of the American Public Health Association, has submitted a report stressing the importance of home safety as an activity of health departments, and emphasizing the logic and value of including home safety in health educational activities. Based upon this report the committee presents herewith suggestions for consideration in developing an integrated program.

In considering these suggestions it should, of course, be recognized that the degree to which the health officer or health department may conspicuously specialize in accident prevention activities bears a relation to the size of the community and to the diversity of organization in the department. Furthermore, the divisions of the health department mentioned may not exist in all communities or the work may not be divided as indicated. Accordingly, the setup of the department itself may dictate a redistribution of the somewhat arbitrary allocation of activities as suggested.

HEALTH OFFICER

1. Arrange for the collection, analysis, and study of home accident statistics to determine necessary preventive steps in the area.

2. Survey the home safety educational work of the community to determine what organizations are participating and what additional activities are needed.

3. Develop and promote a program for the effective integration of home safety with the activities of existing bureaus or agencies of the department.

4. Take the initiative in developing coöperative relationships with other governmental departments such as welfare, housing, sanitation, fire, building inspection, etc.; and in promoting and sponsoring organized community-wide home safety activities, through voluntary agencies, medical societies, physicians, nurses, etc.

5. Consider the appointment, on full- or part-time as conditions warrant, of a safety adviser to coördinate the safety activities of the department, to act as a consultant to the commissioner and bureau heads, and to represent the department in community home safety activities.

6. Through news releases and other publicity, present information regarding home accidents and their prevention, and regarding home safety activities of the department and community.

BUREAU OF VITAL STATISTICS

1. Obtain additional data, supplementing the death certificate, for home accidental fatalities. A suggested form for use in collecting this information through reporting officers, nurses, and others, has been developed by the National Safety Council.

2. Prepare monthly and annual tabulations and analyses of home accident fatalities, and follow through with their evaluation. The routine filing of reports without evaluation and interpretation accomplishes little. A suggested form for this purpose has also been prepared by the National Safety Council.

3. Develop methods of obtaining and analyzing comparable data concerning non-fatal home accidents. Information regarding the occurrence of such accidents can, in most instances, be obtained from hospitals and police departments. These data, however, are usually insufficient for study purposes and in some communities supplemental information has been obtained through health department employees or volunteer groups. The A.P.H.A. or the National Safety Council will be glad to assist the local health department in developing a plan for obtaining this information.

NURSING BUREAU

1. Arrange for an in-service training

* Prepared by Subcommittee on Accident Prevention of the Committee on Administrative Practice, American Public Health Association.

course* in home safety for the present personnel of the nursing bureau and provide similar training for new employees. Invite other public health nurses in the area to attend these courses.

2. Instruct members of the nursing bureau to submit detailed reports, on appropriate forms, of all home accidents coming to their attention.

3. Encourage nurses to integrate home safety education with health education when visiting homes.

4. Instruct nurses to report to proper authorities unsafe conditions noted in home premises which cannot be corrected by tenants.

SANITARY INSPECTION BUREAU

1. Arrange in-service training course* in home safety for the members of this bureau.

2. Instruct inspectors to submit reports, on appropriate forms, of all home accidents coming to their attention.

3. Arrange for the reporting of unsafe conditions to proper authorities.

4. Make a study, possibly in conjunction with housing and health surveys, of unsafe conditions in home premises to determine need of legislative action.

HEALTH EDUCATION BUREAU

1. Integrate home safety education with health education wherever practical in the regular activities of the bureau, including the distribution of booklets, posters, etc.

2. Study the possibilities of additional home safety educational activities.

MATERNAL AND CHILD HEALTH BUREAU

1. Make a special study of accident hazards

* A manual for such a course is being developed for publication by the National Safety Council.

relative to the care of infants and younger children.

2. Through clinics and other means teach mothers the safe methods of handling infants and younger children.

FOOD AND DRUG CONTROL UNIT

1. Study the use, storage, and labeling of poisonous materials in homes.

2. Consider the need of additional regulations regarding their use and storage.

3. Develop educational material on the subject.

INDUSTRIAL HYGIENE BUREAU

1. Encourage employers of labor to ascertain how much lost working time is due to non-occupational accidents, and to undertake off-the-job safety programs among their employees, including specifically the subject of home safety.

2. Develop home safety material for use by employers or assist employers in obtaining such material.

HOUSING BUREAU

1. Coöperate with architects, builders, and others in studying accident as well as health hazards in the various types of dwellings in the community.

2. Suggest necessary legislative action relative to safety in dwellings.

BUREAU WHICH LICENSES BOARDING HOUSES FOR CHILDREN AND OTHER FACILITIES

1. Coöperate with the Housing Bureau and other agencies in studying accident hazards in boarding houses, day nurseries, etc.

2. Inspect boarding houses before issuing licenses, requiring necessary construction or repairs to eliminate hazards.

Nursing Records in Industry*

ANNA M. FILLMORE, R.N., M.P.H.

*Industrial Nursing Consultant, Visiting Nurse Service of New York,
New York, N. Y.*

OF late attention has been focused on the *kinds* of records which should be kept by the industrial nurse. Much less has been said about *criteria for the selection of record systems* and about ways in which the nurses' records may be *used* effectively.

Unless a record fits the job to be done, and unless every item in it is used for some purpose, much time, effort, and money are wasted. What can be more wasteful than workers waiting in line for care while the nurse records treatment given to the preceding worker; especially if the record will be used little, if at all, for improving the plant medical service. Yet I have seen this happen. A more common waste in the small industrial dispensaries I know is the time the nurse spends recording, after her hours on duty should be over, because she could not get it done during her busy day.

There are still many small industrial plants, at least, where the persons planning the record system have apparently thought only of meeting contingencies that might arise under the compensation act. Such inadequate recording is as wasteful as too much recording poorly used, for cumulative individual health records are the cornerstone of health counseling. If a registered graduate nurse lacks the knowledge and tools for health counseling, much of her capacity for service better than

that which a first aid worker could give is wasted.

A committee of industrial nurses sponsored by the American Public Health Association¹ studied the duties of nurses in industry in 1943. They included records in their study and recommended that: "(1) The medical records be kept strictly confidential except as interpretations of them are needed by management; (2) all medical records be kept in the medical department and available for use each time a worker presents himself for care; (3) when the physical examinations of workers are made outside the plant, the records or copies thereof be made available to the nurse; (4) clerical assistance be provided in order that the nurse's time may be conserved and records adequate. Further, the following types of records and reports are needed: (1) daily record or log; (2) individual record, including the medical examination, clinical visits, and the correction of remediable conditions; (3) disability absentee records; (4) compensation records and reports; and (5) monthly and annual reports to management."

Industrial nurses need very much to have more group study of industrial health records which will lead toward some standardization. At present we are keeping records in so many different ways that it is difficult to compare the health situation and the work done in one plant with that in other plants. It is difficult to relate the vital statistics of industry to the vital sta-

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

tistics of the community and the country as a whole.

We need a representative group to study and set up criteria which can be used in selecting record systems for plants of various sizes with various types of health problems.

Lacking these standards and criteria, the nurses and statistician working with me in small industrial plants having contracts with the Visiting Nurse Service of New York, asked ourselves the following questions in setting up our own record system:

1. What are the *legal requirements* that must be met in our state?

2. For what *purposes* other than legal will the records be used—by nurse, doctor, management, community, and nation?

3. What *methods* will be used to carry out these purposes?

4. How can we keep our record system simple enough for a varied group of nurses to understand and to use without confusion?

5. What simple devices may be used to save time, improve accuracy, and increase the uses to which the record may be put?

6. How much can we expect the plant to spend for record forms, filing cabinets, and other equipment?

7. How much clerical help will the nurse have?

I will discuss and illustrate each of these questions briefly.

1. *What are the legal requirements that must be met?* Our physicians and liability insurance company representatives have been most helpful with this problem. The one point we have had to emphasize to each of our nurses going into an industrial plant is the use of the word "alleges" or "states" when she records the worker's own statement about how his accident occurred. As our doctors pointed out to us, omitting such a word implies that the nurse herself saw the accident and that the record is her own description of what she saw. As a rule the information she records is what the patient tells her.

Any of us working in industry knows

that a good record of an industrial injury protects the worker by making sure that evidence of his injury on the job will be available. It also protects the employer against unjust claims. Too, a good description of the accident may assist the physician in deciding what treatment is necessary.

We have been somewhat concerned about the intimate personal data which creeps into individual records in a program of health counseling, fearing that workers might be disturbed if it were revealed in court. To overcome this we try to keep all social data regarding a patient on a separate blue sheet which may be removed from a record if necessary. The disadvantages of this procedure are obvious.

2. *For what purposes other than legal will the records be used?* This seems to me the most important question on the list and the one having most ramifications. It should be answered before any item besides those required by law is included in a record system. Some of the well known uses of records are:

a. To improve the guidance—the health counseling—which is given to the individual worker regarding his health or his illness. This I have already mentioned. A single complaint may be unimportant but as Dr. Fulton² so clearly demonstrates, periodic or repeated complaints of the same nature may mean a good deal. The pattern of illnesses or accidents for any individual—often called his health profile—is more significant, except perhaps in emergencies, than his state of well-being or ill-being at any given moment.

b. A second well known use for the nurses' records is in the compilation and analysis of the facts they contain, in order to study the health situation in the plant as a whole. This may then be compared to the situation in other plants having similar conditions. A good record system is as important for health guidance of the whole plant as for the individual worker.

c. Another purpose for which industrial records are commonly used is to interpret to management the situation in the plant and the needs which are not being met so that improvements in the health program may be

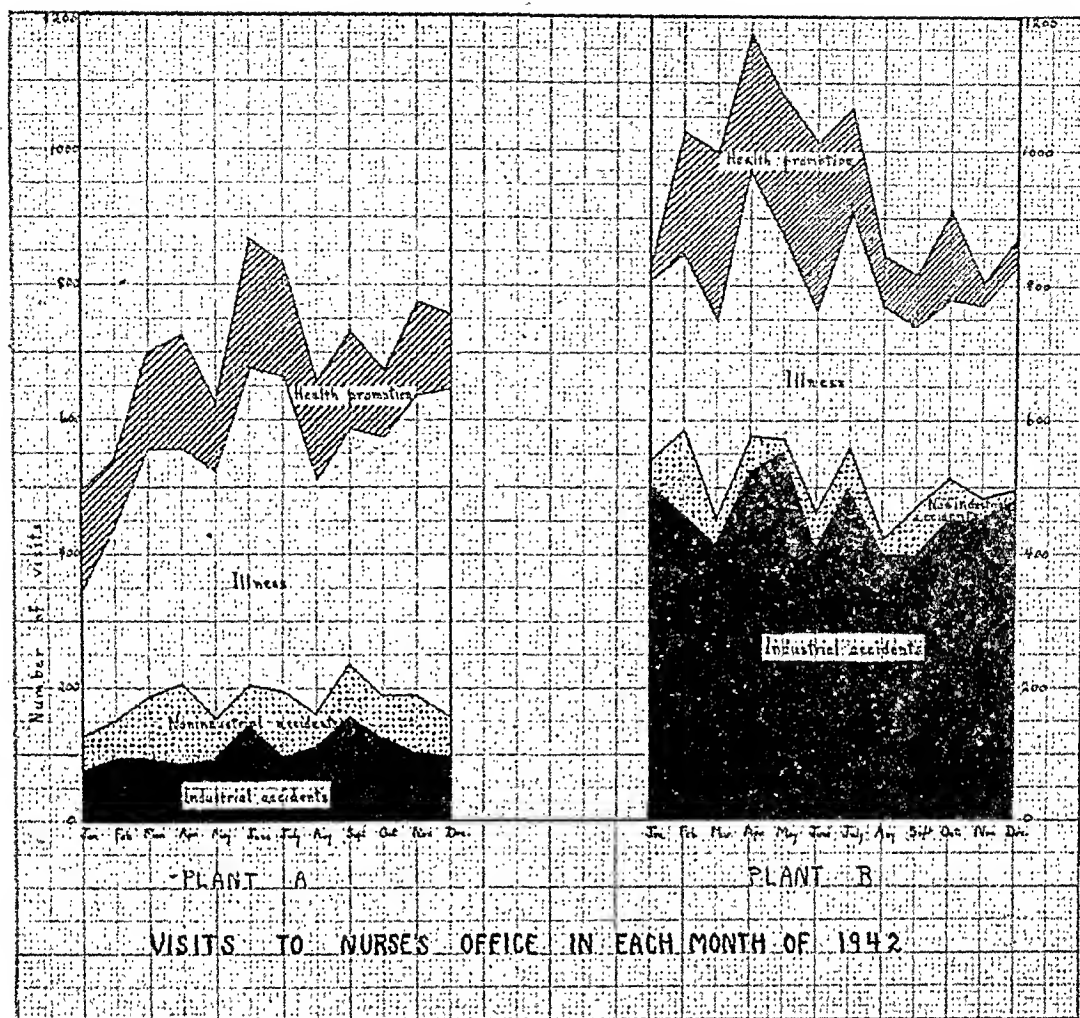


CHART I

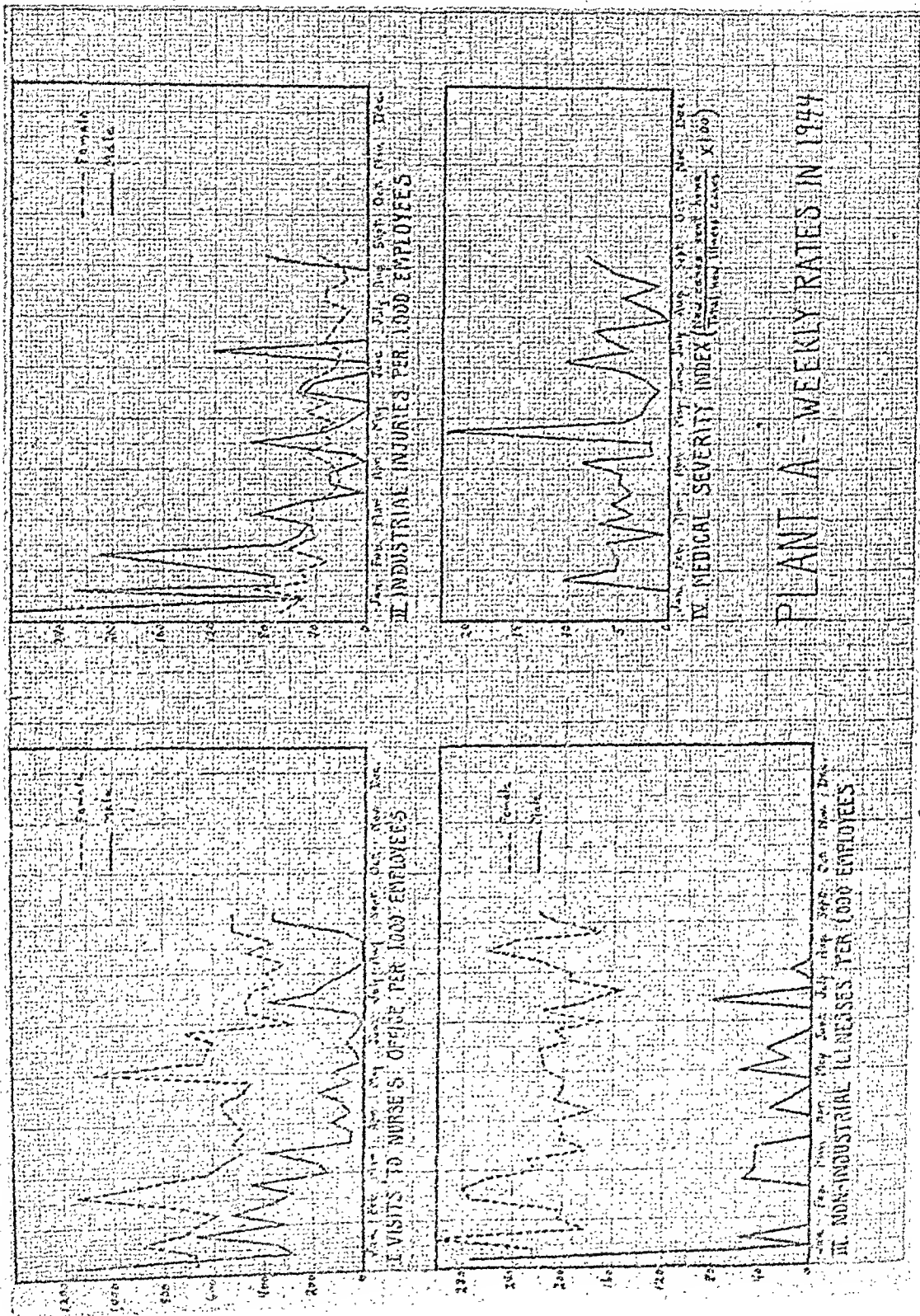
made. There has been a good deal of discussion and writing about this important use of records. Dr. Fulton² who has contributed many ideas to this field, also, says that reports to management and the statistics included must be written in language which business understands. This is a good point but is it not even more necessary to use words and statistics that any individual can understand? It is good to speak the language of business to business, but if we are to gain community support too, should we not use the common language which any average adult can understand?

We used these simple graphs (Chart I) to demonstrate to one of our plant executives the need of more nursing service. It proved to be very effective. We used the same graph to show the content of our industrial nursing service to members of our board. The

monthly visits to the dispensary in plant A approximate the number a nurse can carry alone and do a good job according to Dr. Fulton's² and our own studies. The load carried by the nurse in plant B was consistently higher through the whole year. She was so busy she had no time to work with the safety department on the very obvious industrial accident problem which exists in this plant.

d. Another use of records which is less frequently mentioned but which has unlimited possibilities is to relate the vital statistics of industry to the vital statistics of the community and nation.

Dr. Fulton's² "Medical Severity Index" appears to be one unusually interesting way to do this. He computes this index by relating the number of employees sick enough to be



PLANT A WEEKLY RATES IN 1944

CHART II

sent home to the total new cases of illness seen in the dispensary. Some graphs showing our adaptation of this index are appended.

3. The third question which we asked ourselves in formulating our record system was: *What methods will be used to carry out the various purposes of our records?* Safety workers have developed interesting methods for studying accidents. Examples of such methods are the frequency and severity rates or indices based on man-hours worked. Other methods are the analyses of accidents by type, anatomical location, department and time of occurrence.

Dr. Gafafer's³ use of the disability, severity and frequency rates per 1,000 employees in studying absenteeism is another method of using industrial records. We have combined both Dr. Gafafer's ideas and Dr. Fulton's in working out some simple methods for studying the following conditions in our plants:

1. The total visits to the dispensary
2. The number of industrial accidents
3. The amount of non-industrial illness
4. The severity rate or index for non-industrial illness

The charts will illustrate these rates:

Plant A is a radium dial-painting plant of about 600 workers, mostly young women. The rate of visits to the dispensary for women in this plant was higher than for any other plant we studied but it still follows the general pattern found in our other plants.

Weekly rates for men fluctuated widely because the number of male employees is so small. We questioned including the rates for males in this plant in the graphs. I am showing them to you because they follow the general pattern for male rates found in our other plants also. The rate for visits to the dispensary for women is consistently higher than that for men.

Graph 2 on Chart II illustrates the tendency for men to have a higher rate

for industrial injuries than women. Very minor as well as lost-time accidents are included in this rate. In this plant the men are doing the heavier work with the most hazards.

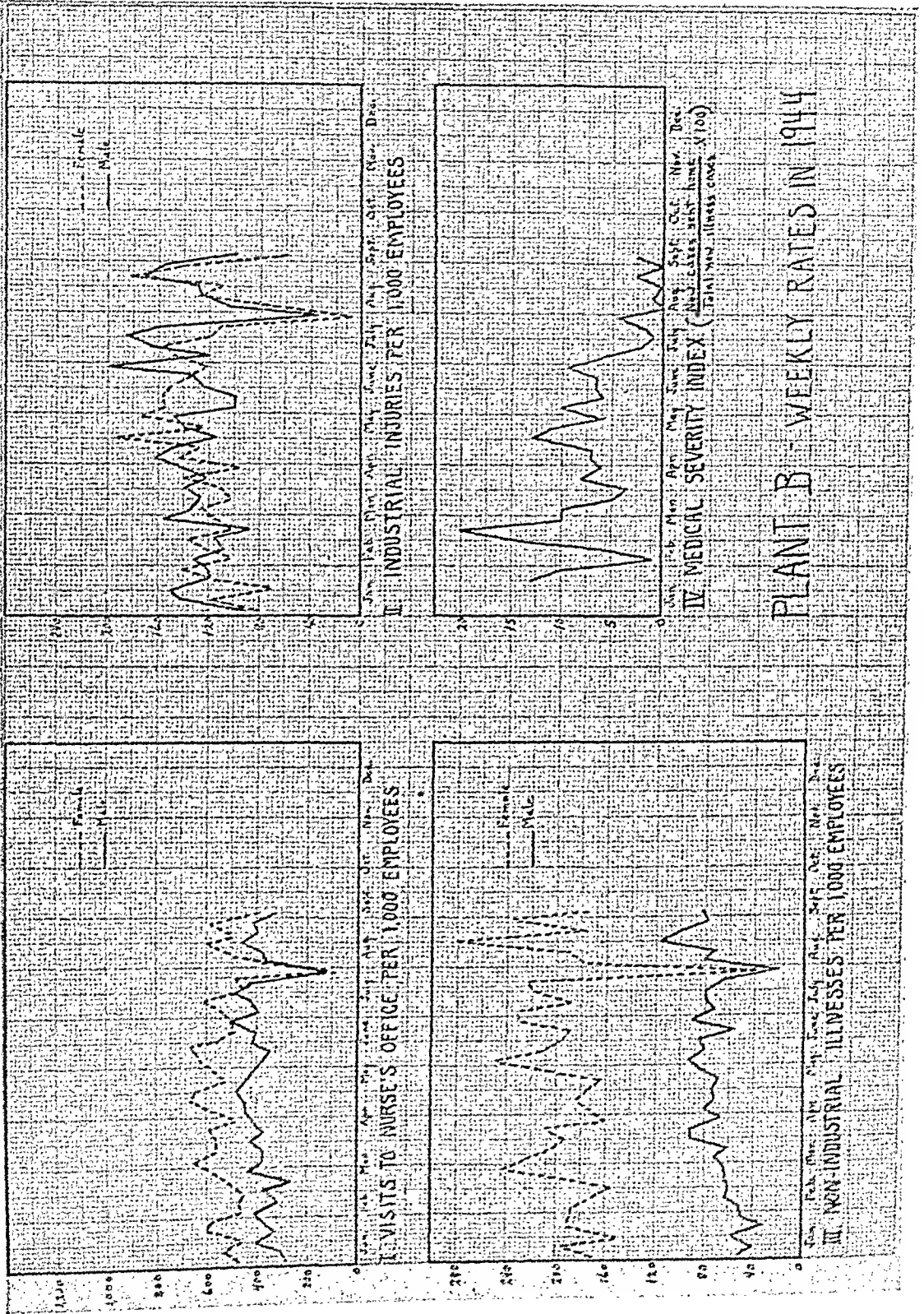
Graph 3 shows how much higher is the rate among women for non-industrial illnesses. This includes all of the minor illnesses which involve no lost time.

It is too soon for us to say of what significance the medical severity index in graph 4 will be. Dr. Fulton has used it to predict absenteeism in his plant with 80 per cent accuracy over a number of years. He finds it closely parallels the general state of illness in the community but the peaks appear sooner. This he thinks is because sick people visit the dispensary earlier than they do the private physicians and clinics.

Chart 3 shows these same rates for a small steel plant. Women and men employees are about equal. Many of the women are doing men's work. Yet the general patterns in the graphs for the other plant hold true.

4. The fourth question which we asked ourselves was: *How can we keep our records simple enough for a varied group of nurses to use and understand?* This is one of our most difficult problems as the health work done in different plants varies. This variation seems necessary if the needs of the particular plant and the desires of plant management, workers, and physicians are to be met. Repeatedly, we have met as a group to simplify terminology and to discard all items in the reports that are not proving useful. Last winter we added a detailed manual of instructions for the use of each record form which even the more experienced nurses have found helpful.

5. Our fifth question relates to the *simple devices which we might use to save time, improve accuracy, and increase the uses to which the record*



PLANT B - WEEKLY RATES IN 1944

CHART III

might be put. One of the first demands of our group was for a set of more or less standardized abbreviations which might be used in recording. We agreed upon this list and it has proved a real time saver.

In the plants where small finger injuries are frequent we use a hand stamp which saves a great deal of time. We find eye stamps unnecessary, as all imbedded foreign bodies in eyes are immediately sent to ophthalmologists outside the plants.

We have talked of coding our standing orders, especially those which are very frequently used, such as minor first aid or advice about rest or preventing infections. One of our nurses is trying such a code now. I do not know whether it will prove practical or not.

Our sixth and seventh questions—*How much clerical help will the nurse have?* and *What is the plant willing to spend for forms and equipment?* were rather simply answered for us. In very small plants clerical help for the

nurse was scarce before the war—it is practically nonexistent now. So we must plan our records to take as little of the nurse's time as possible. Most of the statistical and clerical work necessary for interpretation of the records is done at our central office.

As all of our plants are small and even \$10 for forms and equipment looms big, we adopted mimeographed forms wherever the number needed was too small to be printed economically. We use the regular letter-size manila folders and locked filing cabinets which most plants already have.

The questions discussed and many others need study by a representative group from all over the country which will make practical recommendations.

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Destruction of Water-borne Cysts of *Entamoeba Histolytica* by Synthetic Detergents*†

GORDON M. FAIR, F.A.P.H.A., SHIH LU CHANG,
MARGERY P. TAYLOR, AND
MARGARET A. WINEMAN

Laboratory of Sanitary Engineering, Graduate School of Engineering, and School of Public Health, Harvard University, Cambridge, Mass.

OF the pathogenic organisms whose transmission by water has been established, the cysts of *Entamoeba histolytica* are apparently the most resistant to destruction by the chemical disinfectants that are in general use today. The reaction of these cells to the newer group of synthetic detergents and their possible use in water disinfection are, therefore, of interest.

The synthetic detergents are organic compounds of relatively large molecular size. Although they exhibit hydrophobic properties, they are soluble in water. Since the cohesive force between these substances and water is greater than their intermolecular cohesive force, they lower the surface tension of the water and tend to concentrate at liquid-liquid, liquid-solid, and liquid-gas interfaces. Hence they are also known as surface-active agents, surface tension depressants, and wetting agents. The synthetic detergents are classified as neutral, cationic, or anionic detergents, depending upon whether they are undissociated, dissociated with cationic

hydrophobic radicles, or dissociated with anionic hydrophobic radicles, respectively. Hexylresorcinol is an example of a neutral detergent; the alkyl quaternary ammonium or pyridinium compounds are representatives of the cationic detergents; and the sodium salts of the sulfated or sulfonated fatty acids or alcohols are examples of anionic detergents.

EXPERIMENTAL METHODS

The methods of producing cysts of *E. histolytica*, preparing cyst-polluted water, collecting cysts from treated water, and determining the viability of the recovered cysts are described in previous communications from our laboratory.^{1,2} The detergents studied are listed in the following schedule: *

In testing the cysticidal efficiency of these substances, dosages were based, for fluid preparations, on the percentage of active ingredient indicated by the manufacturer and, for solid preparations, on the weight of the powder without reference to its moisture con-

* Presented before the Engineering Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

† Work done under contract with the Office of Scientific Research and Development.

* Most of these substances were secured through the courtesy of their manufacturers; some of the detergents were obtained through the kindness of Dr. R. J. Dubos of the Harvard Medical School; others were purchased in the open market.

*Commercial Name**Cationic**Chemical Structure**Manufacturer*

| | | |
|------------------|--|-----------------------------------|
| 1. Fixanol | Cetyl pyridinium bromide | E. I. Dupont de Nemours & Company |
| 2. Sapamine Kw | | Ciba Company |
| 3. Nopco-QCL | Lauryl dimethyl benzyl ammonium chloride | National Oil Products Company |
| 4. Ceepryn | Cetyl pyridinium chloride | The Wm. S. Merrell Company |
| 5. Zephiran | Alkyl (C ₈ to C ₁₈) dimethyl benzyl ammonium chloride | Winthrop Chemical Company |
| 6. Triton-K60 | Cetyl dimethyl benzyl ammonium chloride | Rohm & Haas Company |
| 7. Roccal | Alkyl dimethyl benzyl ammonium chloride | Winthrop Chemical Company |
| 8. In-4276 | Decamethylene bis-(decyldimethyl ammonium bromide) | E. I. Dupont de Nemours & Company |
| 9. Hyamine-1622 | Diisobutylphenoxyethoxyethyl dimethyl benzyl ammonium chloride | Rohm & Haas Company |
| 10. Emulsol-660B | Lauryl pyridinium iodide | Emulsol Corporation |

Neutral

| | | |
|---------------------|---|---------------|
| 11. Hexylresorcinol | 1- <i>n</i> -Hexyl-2,4-dihydroxybenzene | Sharp & Dohme |
|---------------------|---|---------------|

Anionic

| | | |
|-----------------|--|--|
| 12. Aerosol-OT | Diocetyl ester of sodium sulfosuccinic acid | American Cyanamid & Chemical Corporation |
| 13. Tergitol-4 | Sodium-7-ethyl-2-methylundecanyl-(4) sulfate | Carbide & Carbon Chemical Corporation |
| 14. Tergitol-4T | Triethanolamine derivative of 7-ethyl-2-methyl-undecanol-4 | Carbide & Carbon Chemical Corporation |

tent. Fixanol was available to us only as a crude paste of undetermined strength, and the amounts of active ingredient actually applied are probably smaller than those reported in this paper.

A quart of water was treated in each test. Uniform distribution of the detergent was secured by placing the treated water in a shaking machine. The pH of the treated water was controlled with one-fifth molar phosphate buffer and citric or acetic acid.

At first, cysts that had been exposed to disinfection were freed of detergents by repeated centrifuging and washing with distilled water. Later, the anionic detergent Aerosol-OT, which itself is not cysticidal in required amounts, was used to neutralize the cysticidal activity of the cationic detergents.

The tests selected were designed to give information on the cysticidal efficiency of detergents as influenced by the nature and composition of the detergent, the density of the cysts, the pH of the treated water, and the presence of suspended organic solids, proteins, and phospholipids.

EXPERIMENTAL RESULTS

The cysticidal dosages observed for fourteen synthetic detergents are recorded in Table 1. The results show the superiority of certain of the cationic detergents over the neutral and anionic substances that were submitted to test. At the same time the table suggests that the effectiveness of any one compound is widely variable. The most successful cationic detergents tested were effective in one-third to one-fifth

TABLE 1

Cysticidal Dosages of Synthetic Detergents in Tap Water Containing 30 Cysts per ml. at 23 to 25° C.

| Detergent | Dosage (p.p.m.) for Stated Contact Periods (min.) | | | |
|---------------------|---|--------|--------|--------|
| | 10 | 30 | 60 | 120 |
| <i>Cationic</i> | | | | |
| 1. Fixanol | 15-30 | 10-15 | 5-10 | 3-10 |
| 2. Sapamine | 20-30 | 5-20 | 5-15 | 5-10 |
| 3. Nopeo-QCL | 20-30 | 10-20 | 10 | .. |
| 4. Ceepryn | 15-35 | 10-35 | 5-20 | 10-20 |
| 5. Zephiran | .. | 30 | .. | .. |
| 6. Triton-K60 | .. | 30 | .. | .. |
| 7. Roccal | >30 | >30 | >30 | >30 |
| 8. In-4276 | >30 | >30 | >30 | >30 |
| 9. Hyamine-1622 | >30 | >30 | >30 | >30 |
| 10. Emulsol-660B | >75 | >60 | >45 | .. |
| <i>Neutral</i> | | | | |
| 11. Hexylresorcinol | 75 | 30-50 | 30-50 | 30-50 |
| <i>Anionic</i> | | | | |
| 12. Aerosol-OT | >1,000 | >1,000 | >1,000 | >1,000 |
| 13. Tergitol-4 | >1,000 | >1,000 | >1,000 | >1,000 |
| 14. Tergitol-4T | >1,000 | >1,000 | >1,000 | >1,000 |

The final pH of the treated waters ranged between 6.0 and 7.0 except for Hexylresorcinol for which it ranged between 7.0 and 8.0.

the concentration required for the neutral detergent, Hexylresorcinol, while the anionic detergents tested were not cysticidal in the concentrations examined. The relative efficiency of the cationic detergents tested can be gaged from a comparison with similarly effective concentrations of gaseous chlorine.¹ These lie approximately at 3 p.p.m., 2 p.p.m., and 1 p.p.m. for contact periods of 15 min., 30 min., and 120 min. respectively.¹ Required concentrations of the detergents, therefore, are about ten times as great. In comparison with halazone, however, they are only about

twice as great on a weight basis. Within the limitations of the tests, it appears that the cysticidal dosages of the best cationic detergents were reduced by about 30 per cent each time the length of the contact period was doubled. The response of Hexylresorcinol was less marked.

The increase of dosage requirements with cyst density is recorded in Table 2 for the two cationic detergents Fixanol and Sapamine and for the neutral detergent Hexylresorcinol.

It appears from this table that the required increase in dosage is of the

TABLE 2

Cysticidal Dosages of Three Detergents in Tap Water Containing Increasing Numbers of Cysts at about 25° C.

| Detergent | No. of Cysts per ml. of Water | Dosage (p.p.m.) for Stated Contact Periods (min.) | | | |
|---------------------|-------------------------------|---|--------|--------|-------|
| | | 15 | 30 | 60 | 120 |
| 1. Fixanol | 30 | 15-30 | 10-15 | 5-10 | 3-10 |
| | 200 | 45-60 | 35-50 | 20-30 | 10-25 |
| | 500 | 60-80 | 50-70 | 30-45 | 15-30 |
| 2. Sapamine | 30 | 30 | 5-20 | 5-20 | 5-15 |
| | 200 | 45-65 | 40-55 | 20-35 | 10-20 |
| | 500 | 60-80 | 50-75 | 25-45 | 15-30 |
| 11. Hexylresorcinol | 30 | 50-75 | 30-50 | 30-50 | 30-50 |
| | 200 | 80-100 | 60-80 | 60-80 | 55-75 |
| | 500 | 95-120 | 85-100 | 80-100 | 80-95 |

For pH values see footnote to Table 1.

order of 30 per cent for each doubling of cyst densities in so far as the more active cationic detergents are concerned. This is the same as for gaseous chlorine.¹ For the more sluggish Hexylresorcinol this increase shrinks below 20 per cent.

Hydrogen-ion concentration, as shown in Table 3, exerted but little, if any, significant effect in tests conducted on Fixanol, Sapamine, Hexylresorcinol, and Tergitol-4T. The somewhat greater efficiency of Fixanol at the neutral point was not shared by Sapamine.

dosage of Fixanol was not changed significantly even by 200 p.p.m. of this foreign substance. This is an encouraging fact, because chlorine and its compounds are greatly reduced in efficiency by the chlorine demand exerted by organic matter. Egg albumen and lecithin* were added in certain tests in order to measure the effect of proteins and phospholipids on detergents and with a view to their shedding light on the mechanism of cyst destruction, a matter not discussed in this paper. One of these groups of

TABLE 3

Cysticidal Dosages of Four Detergents at Varying pH Values in Tap Water Containing 30 Cysts per ml. at 23 to 25° C.

| Detergent | Final pH of Treated Water | Dosage (p.p.m.) for Stated Contact Periods (min) | | |
|---------------------|---------------------------|--|--------|--------|
| | | 10 | 30 | 60 |
| 1. Fixanol | 8.6-9.0 | 10-25 | 5-15 | 5-10 |
| | 6.8-7.1 | 10-15 | 5-10 | 5-10 |
| | 4.0-4.2 | 25 | 20-25 | 10 |
| 2. Sapamine | 8.8-9.0 | 20-30 | 5-20 | .. |
| | 6.8-7.0 | 20-30 | 5-20 | .. |
| | 4.0-4.2 | 20-30 | 5-20 | .. |
| 11. Hexylresorcinol | 8.8-9.1 | .. | 45 | .. |
| | 7.0-7.6 | .. | 40-50 | .. |
| | 3.0-3.5 | .. | 45 | .. |
| 14. Tergitol-4T | 8.6-9.0 | >1,000 | >1,000 | >1,000 |
| | 6.8-7.1 | >1,000 | >1,000 | >1,000 |
| | 4.0-4.2 | >1,000 | >1,000 | >1,000 |
| | 3.5-3.6 | .. | >1,000 | .. |

The effect of three types of foreign substances in water on the disinfecting power of Fixanol is recorded in Table 4.

compounds had been reported³ as being acted upon by the detergents. Table 4 supports these observations, since the increased dosages of Fixanol

TABLE 4

Cysticidal Dosages of Fixanol in Tap Water Containing 30 Cysts per ml. and Varying Amounts of Agar Agar, Egg Albumen, and Soya Bean Lecithin

| Substance | Concentration (p.p.m.) | Dosage (p.p.m.) for Stated Contact Periods (min) | | |
|-------------|------------------------|--|-------|-------|
| | | 10 | 30 | 60 |
| None | 0 | 15-30 | 10-15 | 5-10 |
| Agar agar | 50 | 25-50 | 25-50 | .. |
| | 200 | 25-50 | 25-50 | .. |
| Egg albumen | 50 | 35-50 | 35-45 | 35-45 |
| | 200 | 65-80 | 60-70 | 50-65 |
| Lecithin | 50 | 35-50 | 35-50 | 35-50 |
| | 200 | 70-90 | 60-80 | 60-80 |

None of the substances chosen is normally present in natural waters. Finely ground agar agar was selected to represent suspended organic matter. As shown in Table 4, the cysticidal

required to destroy the cysts, though not large, are significantly different

* The soya bean lecithin was kindly supplied by Dr. H. C. Marks of the Wallace & Tiernan Company.

from the amounts that were effective in the absence of these foreign substances.

SUMMARY AND CONCLUSIONS

Of the synthetic detergents studied, at least four of the cationic substances were found to be efficient cysticides, the single neutral detergent was somewhat less effective, and the three anionic detergents showed little promise. For the disinfection of drinking water, the cysticidal dosage of the best substances tested was about 30 p.p.m. for contact periods of 10 min., and the required dosage was decreased to about 10 p.p.m. as the contact period was lengthened to two hours. Detergent requirements became greater as the density of the cysts to be killed was increased. Hydrogen-ion concentration appeared to have little influence on the cysticidal activity of most of the detergents examined, and the presence of suspended organic matter, too, was of low significance.

The detergent and disinfecting properties possessed by these newcomers to the field of sanitation suggest the exploration of their possible usefulness for a number of purposes other than water disinfection, among them: (1) the sanitation of eating

utensils; (2) the safeguarding of shellfish; (3) the cleansing and disinfection of contaminated vegetables and fruits that are to be consumed raw; (4) the cleansing and disinfection of water mains; (5) the cleansing of water filters; and (6) the control of *Psychoda* in trickling filters.

Findings in favor of the synthetic detergents, therefore, are many. Water containing one of these substances in the smallest effective doses here recorded as cysticidal, on the other hand, has a tendency to foam when it is shaken. The resulting suggestive appearance and general sliminess of the water elicit unsatisfactory psychological responses. More important still is our lack of information on the physiological effects that the synthetic detergents may exert upon human beings. Until these matters are fully explored, use of the synthetic detergents for the disinfection of drinking water must necessarily remain in the experimental stage.

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Value of Typing Meningococci^{*†}

SARA E. BRANHAM, PH.D., M.D., F.A.P.H.A.

Senior Bacteriologist, U. S. Public Health Service, Bethesda, Md.

THE present war has brought sudden changes to most laboratories. An increase in certain kinds of routine, a sharp labor shortage, and a curtailment of supplies and materials have made reorganization of work and reëvaluation of methods necessary in most places. There has been no room in the high pressure program of today for procedures of doubtful value. Should the typing of meningococci be included?

Meningococci have been typed for 35 years. First in 1909, Dopter¹ found serological differences among the strains studied by him, and he separated them into the meningococcus and the parameningococcus. Martha Wollstein² in this country soon confirmed his observations.

There are many laboratories that began typing meningococci at that time and have been typing them ever since, adopting the newer classifications as they have been developed and contributing materially to the increasing knowledge of these microorganisms. Such laboratories, knowing what has been gained, will, no doubt, continue to type meningococci.

There are many other laboratories that have never typed meningococci. In these days of crowded programs such laboratories will not take on new procedures unless they are convinced that the need for them is urgent.

The year 1943 saw the highest incidence of meningococcus infections ever known: 17,974 reported cases as compared with the next highest incidence of 10,551 in 1929, and 5,749 in 1918 during World War I. This makes a ratio of approximately 18 to 10 to 5 for those years. The number reported for the first six months of 1944 was 11,662, which is a higher figure than for the corresponding period of 1943.

Thus it seems that this is a very appropriate time to consider the question as to how much time and study should be given to the meningococcus cultures that come into the routine laboratory, when they should be referred to research laboratories, and whether or not there are times when it is unnecessary to do anything at all with them.

Many small, over-busy, scantily equipped laboratories never make cultures from cases of meningitis. A Gram-stained smear from spinal fluid may constitute the only evidence for meningococcus infection. In the greater number of localities cultures are made and the organisms identified as meningococci by fermentation reactions and agglutination with polyvalent serum. In most large and well equipped laboratories the serological group of the meningococcus is determined. How far is it important to go? In order to answer this question satisfactorily it will be necessary to ask others: What has been gained by typing meningococci in the past? What does typing do for us now? How useful can it be in the future?

^{*} Presented before the Laboratory Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

[†] From Biologics Control Laboratory, National Institute of Health.

Nearly all of our knowledge of meningococci has been gained through typing. Beginning 35 years ago with Dopter's¹ recognition of what he termed the "parameningococcus" as distinct from the "meningococcus," on through World War I, with the A, B, C, D² classification of the French and the I, II, III, and IV types of Gordon and Murray,⁴ as well as the I and II grouping of many other British workers,⁵⁻¹¹ thousands of strains of meningococci have been typed. More than 2,000 have been done in our own laboratory.

First let us examine the epidemiological knowledge gained from such routine studies. We have found that there are two main groups of meningococci which have a different significance: Group I seems to be responsible for epidemics^{12, 13}; sporadic cases are apt to be due to Group II. There is apparently a fairly constant incidence of sporadic cases due to Group II, and at intervals of approximately 8-12 years¹⁴ epidemic waves due to Group I are apt to occur. These epidemic waves are superimposed upon the fairly constant sporadic level. During times of war, incidence of meningococcus infection is especially apt to increase and epidemics may occur off schedule. During recent years it has been possible to foresee periods of unusual incidence by the increase in the relative number of Group I strains sent in for typing, and to recognize that an outbreak was on the wane by an increased proportionate occurrence of Group II strains.

There were nearly twice as many cases of meningococcus infection reported during 1943 as for any other year for which we have records; more than 90 per cent of these were found to be due to Group I strains. Two years ago most of the relatively few strains sent to us were of Group II.

Group I meningococci can be distinguished not only serologically but in

other ways also. Serum prepared against Group I does not protect against other groups, just as that prepared against other groups does not protect against Group I. There are chemical differences. Scherp and Rake¹⁵ have isolated and identified a carbohydrate from the capsular substance which seems responsible for the specificity of the group. To a certain extent there are clinical differences since low grade, chronic septicemias, without meningeal involvement, are less frequently due to Group I strains than to those of Group II. Apparently Group II is, on the whole, less invasive than Group I.

A second important outgrowth of typing is the recognition of the relation of the serological group to the carrier state. It has long been recognized that a large number of people habitually harbor meningococci in the nasopharynx. Rake¹⁶ showed that this condition may persist for years. The meningococci from these chronic carriers are usually of Group II, though some of them may be so "rough" and nonspecific as to be untypable. They are, as a rule, avirulent, as tested in mice, and a high incidence of such carriers may be compatible with complete safety to contacts.

Quite a different significance may be attached to the presence of Group I strains. These carriers are thought to be seldom chronic. The strains harbored by them are usually quite specific, encapsulated, and often quite virulent. A few of these carriers may constitute a very real menace. It is of practical importance to recognize the differences among carriers.

Another interesting, as well as valuable, outgrowth of routine typing is the recognition of new groups. Recently a well defined group of strains emerged from among those usually classified as Group II. The first report of these strains was made by Cohen.¹⁷ They are immunologically distinct, are en-

capsulated, and are good antigens. They are as abundant as the usual II's and are found in cases as well as in carriers. When the clinical importance of this group was recognized it became necessary to give it some specific designation. We have called it II *alpha*,¹⁸ tentatively, following the precedent of Dopter¹⁹ who described *alpha*, *beta*, and *gamma* types among his parameningococci—our Group II. These II *alpha* strains are, however, not a type within the Group II, as the terminology may be interpreted by some to signify. They comprise an independent entity, the real position and significance of which have not yet been accurately determined.

So far we have discussed epidemiological findings only. Our epidemiological questions about meningococci are by no means all answered. Are all epidemics due to Group I strains, or is it a coincidence that such has been the case in this country over the last 25 years? There are reports that seasonal waves of Group II infections occur in the Sudan and other parts of Africa. What is the significance of this? Group II is undoubtedly very heterogeneous and a thorough study of it from a serological standpoint is badly needed. Subgroups, or types of special significance within the groups may be yet unrecognized. Group IV has been encountered only a few times since 1929 when it was very conspicuous. Its clinical and epidemiological significance, as well as its serological relationships are not well understood. There may be many facts about Group I not yet recognized. Laboratories that have always typed meningococci will continue to do so for these reasons as well as for others.

Laboratories which have not been accustomed to typing meningococci routinely, especially small ones with crowded programs and reduced personnel, may feel that this is not the

time to take on such procedures as part of their routine, for the epidemiological reasons outlined above. Under present-day conditions they would think it desirable to type the relatively few strains coming to them only if they felt that such typing had a definite bearing upon the treatment of those individual cases.

For many years all cases of meningitis were treated just alike. Serum constituted the only specific therapy and all serum was polyvalent. Typing was a long procedure involving two or three days. If a patient did not respond to the serum, a different lot of serum especially rich in antibodies for that particular meningococcus was obtained. This was determined by agglutination and was the only way in which typing meningococci bore direct relation to the treatment of a given case. Very little use was made of the knowledge gained by typing in treating the individual patient. If polyvalent serum were going to be given anyway it is no wonder that many small laboratories, equipped to handle only the most essential procedures, have never felt that typing meningococci was one of the things necessary to do.

This same point of view is held now in many places in regard to the cases treated with sulfonamides. If all are to receive these "sulfa" drugs, why spend time and effort in typing the meningococci involved? There are times and circumstances when such a view is undoubtedly sound. For example, in Army camps cases are apt to occur in bunches, all due to the same strain. The patients will be young men in the most favorable age group, and it will be only an exceptional case that does not respond to the sulfa drugs used. In acute epidemics in institutions, school, or military establishments where one strain is presumably involved and the age group of those affected is favorable, an overworked laboratory

staff may be justified in carrying its study of an individual case no further than a Gram-stained smear from spinal fluid. Although such a limited procedure is not recommended, the necessity for it is recognized at times. Quite a different situation may be found in the civilian population, especially during the years between epidemics when sporadic cases are the rule. These last may be due to a great variety of strains.

All meningococci do not respond alike either to sulfa drugs or to antiserum. As far as the sulfonamides are concerned this is an individual strain difference,²⁰ and not a property of any serological group as a whole. A strain that is responsive to one sulfa drug is usually responsive to all; a strain that is resistant to one is resistant to all. Not only do we meet some cases due to drug-resistant strains of meningococci but occasionally strains become drug-fast, a few people are drug-sensitive, and there are sometimes contraindications to giving large amounts of sulfa drugs, especially in the very old, the very young, and in persons with liver or kidney damage, or with sensitive hematopoietic systems. In such instances specific antiserum may be an important adjunct in therapy. It is important to type meningococci under any circumstance in which there is a possibility of using serum.

A brief discussion of serum may be appropriately included here. Different groups of meningococci are quite distinct immunologically. Serum prepared for one group will not protect against meningococci of another serological group. A serum must, therefore, be specific for the group of meningococcus involved, or else adequately polyvalent. A polyvalent serum that has an adequately high antibody content for all groups is difficult and expensive to make. It is especially hard to produce a good titer for Group II. Monovalent sera, refined and concentrated, are far

simpler to produce, especially when prepared in rabbits. They are experimentally more effective, having often a protective titer of 5 to 10 times that of whole, polyvalent horse serum.²¹ A practical plan to follow, especially in sporadic cases, is to type the meningococci involved and if the patients do not respond to sulfonamides within 24 hours, add an appropriate monovalent serum to the treatment. Since very few cases will need serum it should be possible to build up supplies of high potent sera specific for the types involved and to store them at low temperatures in a dried state to be ready when the need for them arises.

Whether or not it is advisable to type the meningococci from all patients for the sake of the few cases in which this knowledge will be applied therapeutically is a question each laboratory must settle individually. With the development of monovalent, concentrated and refined antiserum we have, for the first time, a means of applying our knowledge of the type of meningococcus to the treatment of the patient. With the few patients in which this application is made, typing the strains may make the difference between life and death.

It is possible that penicillin may change this picture. Recent reports indicate that it is very successful in treating meningococcus infections.²² However, until we are more certain about this we should not discard all other agents. No penicillin-resistant strains of meningococcus have been reported thus far, but we have encountered a penicillin-resistant gonococcus.*

During the present epidemic wave of meningococcus infection there has been more typing better done than ever before. The Meningitis Commission

* Since this article was set, a penicillin-resistant meningococcus belonging to Group II has been received from one of the Army camps.

has typed all strains recovered in the Army, both those from cases and those found in intensive carrier studies. This Commission has accumulated a wealth of epidemiological material.

Typing meningococci is much easier and quicker than ever before. Laborious absorption of agglutinins to separate Group I into Types I and III is unnecessary. The Neufeld quellung reaction can often be used directly on spinal fluids from untreated cases provided there are enough organisms present to be seen.²³ If this quellung reaction cannot be done directly on spinal fluid it may be used on the very young culture. This, of course, applies only to encapsulated strains. So far no capsules have been shown on Group II cells, but only on those of Groups I and II *alpha*.

The rapid agglutination test described some years ago by Noble²⁴ has recently been adopted by the Meningitis Commission for use with the chicken sera introduced for typing by Phair and his coworkers.²⁵ Typing serum can be prepared more rapidly in chickens than in rabbits and, since the chickens are not susceptible to the meningococcus, they can tolerate tremendous injections. This makes them especially useful in preparing sera for Group II strains which are notably poor antigens.

With the coöperation of the biological houses, the National Institute of Health has undertaken the control of meningococcus typing sera so that dependable typing sera can be obtained. Minimum requirements for typing serum have been set up.²⁶

There is as much to be gained by typing as ever before. With easier and quicker methods available it would seem that at the present time routine typing of meningococci is a desirable practice to follow in all laboratories where such a procedure is practicable. Each laboratory will necessarily decide this question for itself. Most of our knowledge

of the meningococcus has come as a result of typing and we cannot tell what new and helpful information may lie ahead.

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School of Public Health at Minnesota

The regents of the University of Minnesota Medical School, Minneapolis, Minn., have recently changed the status of the department of preventive medicine and public health to the School of Public Health. The change was made to give proper recognition to a department which has been for a number of years offering professional training in public health for physicians, engineers, and nurses, and more recently for health educators. The School of Public Health will continue to function as an integral part of the medical school and the university Division of Medical Sciences. A building program planned at the university eventually will include a sepa-

rate unit for the School of Public Health.

Gaylord W. Anderson, M.D., professor and head of the department of preventive medicine and public health, on leave of absence as Lieutenant Colonel, Medical Corps, Army of the United States, and chief of the Division of Medical Intelligence, Office of the Surgeon General, has been named director of the new School of Public Health. In January, Dr. Haven Emerson, New York, returned to the medical school as visiting professor of public health to serve, according to present plans, for the year 1945. During the leave of Dr. Anderson, Dr. Emerson has served in a similar capacity.

An Industrial Health Program for Federal Employees*

VERNE K. HARVEY, M.D.

Medical Director, U. S. Civil Service Commission, Washington, D. C.

THE United States Government is one of the largest single employers of civilian workers in the world. The government has done much to stimulate health programs for workers in private industry. The time is overdue when it should establish a sound health program for its own employees.

Illness caused an average loss of 10.2 days per employee in one large government department in 1942. The National Association of Manufacturers reports that the installation of medical and health programs in 234 industrial establishments was accompanied by a 29.7 per cent reduction in absences due to sickness (other than occupational disease). If this one federal department could improve its illness record by 3 days per employee, more than 246,000 man-days would be saved—the equivalent of 820 employees' full-time services for one year.

In these days of man power shortages, no employer should be in a position where he is hiring additional people in the open labor market simply because he refuses to put into effect a health program for his employees. Certainly, the federal government, functioning in the capacity of an employer, should not be in such a position.

H. R. 5257,† now pending in Congress, will, if enacted into law, give departments and agencies the authority, within

the limits of their appropriations, to establish health programs for their workers. It reads as follows:

A BILL

To provide for health programs for Government employees.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, for the purpose of promoting and maintaining the physical and mental fitness of employees of the Federal Government, the heads of departments and agencies, including Government-owned and controlled corporations are authorized, within the limits of appropriations made available therefor, to establish by contract or otherwise health programs which will provide health services for employees under their respective jurisdictions: Provided, That such health programs as are now being conducted for Federal employees may be continued until June 30, 1945. The health services provided for Federal employees shall be established only upon recommendation of the Civil Service Commission after consultation with the Public Health Service and shall be limited to (1) treatments of minor illnesses and dental conditions except in cases of emergency or of injury or illness sustained while in the performance of the employee's duty in accordance with the Act of September 7, 1916, entitled "An Act to provide compensation for employees of the United States suffering injuries while in the performance of their duties, and for other purposes," as amended (U. S. C., 1940 edition, title 5, ch. 15); (2) preemployment and other examinations; (3) referral of employees to private physicians and dentists; and (4) education and preventive programs relating to health, including the alleviation of health hazards

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

† H. R. 5257 was introduced in the 78th Congress. H. R. 284 is now pending in the 79th Congress. In H. R. 284 Section 2 is deleted and June 30, 1946, has been substituted for June 30, 1945.

in the working environment. The Civil Service Commission shall serve as a coordinating agency in the development of such services for all Federal employees and, in collaboration with the Public Health Service, with respect to the extent to which such services shall be available to employees.

Sec. 2. This Act shall not apply to the Tennessee Valley Authority.

Wartime employment in the federal government has brought to light and accentuated a long-standing need of health programs for government workers. The federal government, as an employer, has a definite responsibility in meeting the health problems of government workers. These problems in most instances have been dealt with inadequately in the past in the various departments and agencies. Although emergency rooms, under the supervision of graduate nurses, have contributed in some degree to increased efficiency of government employees, they have not met the needs of federal employees, and the federal government is in the position of rendering services which fall far below those of private industry. No agency-wide legal authority has existed in government for furnishing federal employees with health programs such as those found in private employment.

Providing health services to government employees is primarily a question of promoting and maintaining their physical and mental welfare. Savings resulting from reduction of occupational diseases, accident frequency, and absenteeism are directly related to the overall principle of maintaining and conserving human resources. In government offices and shops, ample provision has been made for the maintenance of machinery and tools. There is a need for giving at least an equal amount of attention to the human beings who use the machinery and tools.

The departments and agencies of the federal government are taking the lead in providing disabled veterans with

opportunities for employment. They will be faced with problems in placement and postplacement adjustment of veterans which will require that operating officials have health services, with competent medical personnel available for consultation.

The scope and standards of health programs should be consistent with:

- A. Purpose of the department or agency
- B. The federal government's responsibility as fixed by the Employees' Compensation Act of 1916, as amended
- C. The employee's natural allegiance to his family physician
- D. The accepted limits placed upon industrial medicine

The physician in charge of the program should be the health officer of the organization and should be highly qualified in the field of industrial medicine. His responsibilities and the scope of his program would be divided into three main categories:

- I. Preventive services
- II. Advisory and diagnostic services
- III. Treatment

Such a program would be accomplished through the following:

- I. *Preventive services*
 - A. Health examinations
 1. Preplacement
 - (a) Original
 - (b) Reassignment
 2. Periodic
 3. After illness
 4. To determine fitness for continuing assignment, separation, change of duty, or retirement

The purpose of health examinations in an industrial health program for federal employees is to aid in the judicious placement of workers in jobs they can perform efficiently without being a hazard to themselves or others. Such examinations should not be used as a tool for unjust exclusion or to narrow the field of competition.

B. Promotion of adequate environmental hygiene

1. Sufficient lighting and ventilation, safe water supply, proper distribution of food and disposal of garbage, and insect and rodent control
2. Fatigue prevention measures—such as noise reduction, adequate rest periods, vacations, refreshments, and posture aids
3. Elimination or control of specific occupational hazards due to certain solvents, gases, dusts, and other allied causes

C. Control of communicable diseases

1. Tuberculosis
2. Venereal diseases
3. Others

D. Mental hygiene

Cases of workers who show indications of emotional disturbances would be referred to the physician in charge for study

E. Health education in which various media are used in presenting such subjects as:

1. Nutrition
2. Health hazards (seasonal and general)
3. Physical fitness
4. Communicable diseases
5. First aid

F. Health records

These should be confidential and kept in the Health Unit.

II. *Advisory and diagnostic services*

- A. Acquainting the worker with his physical condition and assisting him in maintaining good health
- B. Evaluation of employee's symptoms and referral to private physician

III. *Treatment*

- A. Prompt and efficient handling of illnesses and injuries occurring while employees are on duty by providing treatment on the spot and referral to proper facilities for complete and adequate care
- B. Treatment, on the job, of minor non-compensable injuries and diseases, with the object of keeping employees at work
- C. Emergency care for serious non-service-connected injuries or diseases, and referral to a private physician or hospital

- D. Special treatments to be given only upon the written request of the employee's private physician

In order for such a health program to function efficiently it should be placed administratively as high in the organization as feasible to enable the physician in charge to have access to top management, and to insure close cooperation with the personnel, safety, and other divisions of the agency which may be concerned.

With regard to the personnel necessary for the efficient operation of the program, there should be at least one medical officer per 4,000 to 6,000 employees, the exact ratio depending upon such factors as distribution of employees, number of shifts worked, extent of industrial hazards, employee turnover, etc. Nurses required should be on the basis of one per 500 to 1,000 employees, the ratio depending upon the above mentioned factors. The number of stenographic, clerical, and other types of supporting personnel would depend upon case load, number of rooms, distribution of employees, etc., but in any event the number should be adequate to avoid the necessity of doctors and nurses performing routine clerical and other non-medical duties.

In considering these programs, it is well to emphasize that the proposed legislation, providing health services in government departments and agencies, is not intended to displace the private physician's services to government employees in the community. One of the purposes of the programs is to aid the private physician in maintaining contact with regular patients who are in need of medical treatment and observation. New patients who have been found to require medical treatment and observation would be referred to him. If, in such a program, emphasis were placed on treatment to such an extent as to exclude proper referral to private physicians, the program would become

enmeshed in procedure; its proper function would be hindered and its purpose destroyed.

The establishment of health programs for government workers would permit government agencies to conserve their

human resources, as they now conserve their inanimate resources, and would be not only humanitarian but also "good business," because it would improve employee efficiency and morale.

Dr. Parran on Budgeting Nursing Resources

Speaking in favor of H. R. 1284 and H. R. 1666, Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, on February 6 appeared before the House Committee on Military Affairs to discuss, among other things, minimum nursing service for the civilian population, its relationship to military needs, and the contribution which the U. S. Cadet Nurse Corps is making toward both military and civilian requirements for nurses.

Speaking in favor of the proposed draft of nurses, Dr. Parran said that the bill was not to be condemned as discriminatory in singling out this one profession for selective service, but rather that it gives merited recognition to the essentiality of the profession of nursing.

"Hospitals today are caring for the largest number of patients in their history, in spite of the fact that we have no widespread epidemics. . . . While some nurses can be withdrawn from hospital service, there is no large reservoir in this group. The Army should not accept nurses who are occupying positions which are really essential. There are two groups of nurses in particular where great damage may be done. Public health departments and visiting nurse associations employ approximately 21,000 nurses. None of them are over-staffed. In fact, this figure represents 20 to 30 per cent vacancies. Public health nurses constitute the largest single group among all health department employees. Without nurses, health departments cannot operate. Because many hospitals are over-

loaded, many sick patients are being cared for in their homes by visiting nurses. . . . We must continue, therefore, to supply a minimum number of graduates with minimum special preparation to fill key positions vacated in staffs of public health agencies and schools of nursing.

"As the war progresses, the major civilian health problems are still ahead of us. . . . In other words, there is bound to be a lower level of civilian health and greater susceptibility to disease. . . . The one most substantial source of nurse power is the private duty group, many of whom are performing non-essential tasks. . . . In my opinion almost every private duty nurse eligible for military duty can be spared, and those not eligible for military service should go into truly essential work. Our estimates as of June, 1944, show there were approximately 60,500 nurses doing private duty. . . . Should the Army be forced to recruit its quota indiscriminately, irreparable damage will be done to the entire nursing service structure—to the civilian front and, sooner than you think, to the military as well. . . . It is for these reasons that I recommend the selective service principle for professional nurses to include minimum civilian as well as total military needs. This is total war. We must mobilize fully to guard against collapse on any front, military or civilian. . . . We have heard gripping stories of the valiant service being rendered by our nurses at the battlefronts. In many hospitals and public health agencies at home, too, they are working beyond the limit of continued human endurance. Their work would not be too heavy if it were shared evenly. . . . The national health and safety demands that our limited nursing skills be budgeted wisely so that our sick and injured may have the best opportunity for life and health."

Future Implications of the Nutritive Value of the American Wartime Diet*

FRANK G. BOUDREAU, M.D.

Executive Director, Milbank Memorial Fund, New York, N. Y.

PROBABLY never before in the history of this country has more information been available concerning the nutritive value of the American diet, that is, the nutritive value of the average American diet. Putting it in another way, we have better information than ever before concerning the total quantities of food and nutrients moving into or available for civilian consumption, and by dividing up these quantities among the population we can determine how adequate such a diet would be. It goes without saying that for a variety of reasons this food and these nutrients are not divided up according to nutritional requirements, so that after ascertaining whether total quantities available for civilian consumption would be adequate if each individual received his share, we must carry out dietary studies to determine the actual diets of the various social, economic, and geographical groups which make up our population. On this important subject we have rather less information than we had before the war since fewer and fewer adequate dietary surveys have been carried out in recent years. This is a serious gap in our knowledge.

It is well to recall that the United Nations Conference on Food and Agriculture at Hot Springs recommended, as a first step in the formulation of

national nutrition policy, the setting up of a national nutrition organization whose duty it would be to ascertain food consumption habits; that is, to conduct dietary surveys, and to study the nutritional status of different sections of the population.

It was the government of this country which convened the Hot Springs Conference, and it should be the first government to carry out the spirit and intent of the recommendations which its technical delegates promoted and accepted with so much zeal.

The appraisal of the nutritive value of the American diet in wartime will not be complete until we have studied the nutritional status of representative samples of the American population, for the object of food production and distribution is to maintain the best nutritional status and the highest degree of health which can be achieved by dietary means. Here again there are considerable gaps in our knowledge, since the public health authorities have not carried out systematic studies of the nutritional status of different sections of the population. Surveys by private groups have to some extent helped to fill in this gap in our knowledge.

Let us now compare pre-war and wartime "total supplies of food moving into civilian consumption, measured at the point where they enter the consumer's hands and divided by the total civilian population." These will be referred to hereinafter as "per capita

* Presented before the Food and Nutrition Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

supplies," and it should be remembered that they are greater than the quantities of food actually eaten because of losses in preparation and cooking.

I have obtained the facts which follow from a report prepared by a special committee set up by the Combined Food Board in consequence of a joint statement issued by the President of the United States and the Prime Minister of the United Kingdom in June, 1942, that "in principle, the entire food resources of Great Britain and the United States will be deemed to be a common pool." "It soon became apparent" in the words of the report, "that this could be done only if more complete and comparable information were available on the rates of consumption in the countries concerned." Hence a special Joint Committee was set up by the Combined Food Board to secure the necessary data. The following information is drawn from that report.¹

Pre-war supplies of calories moving into civilian consumption in this country were 128 per cent of requirements; in 1943 they were 130 per cent of requirements; that is, there was a slight increase. There was also an increase in the supplies of total protein available, from 137 per cent of requirements in pre-war years to 146 per cent in 1943. The increase in supplies of animal protein available was 9 per cent and in fat 5 per cent.

Of the important minerals, calcium in the consumed diets of the United States has risen by about 15 per cent and iron by 14 per cent.

As regards the vitamins there appears to have been a slight increase in the supplies of vitamins A and C available (+8 per cent and +7 per cent respectively). The supplies of thiamine have increased substantially since before the war (37 per cent), and those of riboflavin (18 per cent), and niacin (14 per cent) more moderately.

In terms of foods moving into

civilian consumption in 1943 as compared to the pre-war position, there have been increases in milk and milk products; in meat, poultry, fish, and eggs, in leafy green and yellow vegetables and in tomatoes and citrus fruits. In fact, the only decreases in important foods have occurred in sugars and syrups and in tea, coffee, and cocoa. The supply levels of fats and oils have been approximately maintained.

Altogether this is a remarkable record. Such increases in the nutritive value of the average American diet during the war in spite of the large amounts of food allocated to the armed forces and for lend-lease reflects credit on farmers, food industries, transportation agencies, and government. Nutrition authorities, in and out of government, deserve special praise for their unremitting efforts to emphasize the need for better food and nutrition as contributions to the war effort. This is the bright side of the food and nutrition picture, reflecting great credit on all who have taken part in planning, producing, and distributing our food supplies.

But of course, there is another side to the picture, and it is from a close study of this less cheerful side that we can derive most profit for the future. Health workers should be particularly interested in the campaign against endemic goiter, one of the first nutritional deficiencies to be attacked successfully on a broad front. About a quarter of a century ago a vast educational campaign was under way, iodine tablets were distributed in many schools, surveys to determine the prevalence of endemic goiter were carried out, and efforts were made to insure that iodine was added to all table salt. Now education on this subject is neglected; iodine tablets are no longer distributed and only about 50 per cent of the table salt sold now contains added iodine. It would seem that while we may have

gone forward on many parts of the nutrition front, we have not been successful in preventing the enemy from filtering into our rear. Endemic goiter may be once more on the march. Three steps are necessary if we are to maintain the successes we have achieved: renewal of the educational campaign, so that there will be a demand for iodized salt; a survey to determine the present position of endemic goiter; and the more complete iodization of table salt. The Food and Nutrition Board of the National Research Council has recommended these three steps and I strongly urge the American Public Health Association to take up the challenge.

Now we come to the question, how much have individuals profited from these increased supplies of foods and nutrients available for civilian consumption, for it must be emphasized that none of the figures given above represent the actual supply received by any individual consumer.

Partial answers to that question may be obtained from studies of family food consumption in the United States carried out by the Bureau of Human Nutrition and Home Economics. I quote from the latest report.²

In 1936 three-fourths of the families in the United States had diets that did not meet the National Research Council recommendations for riboflavin and about half had diets that were low in calcium, thiamine, and ascorbic acid. It is estimated that in the spring of 1942 the diets of more than one-half of the families still did not meet the recommended allowances for riboflavin and that the proportion of diets low in calcium had been reduced to less than a third; the proportion low in thiamine, to a fourth; and the proportion low in ascorbic acid, in which there was the greatest improvement, to less than a tenth. There was also a great reduction in the estimated proportion of families that had diets low in vitamin A value, iron, and protein—from one-fourth in the earlier period to about one-tenth in the later period.

As Dr. Esther Phipard has said

"these facts lend support to the general trend toward dietary improvement indicated by the averages for the United States as a whole. They suggest also that the job is not finished. . . . There are still thousands of families with incomes too low to purchase a fully adequate diet."³

The tragedy is that the government does not carry out systematic dietary studies on a sufficiently broad scale to locate such families and provide for their needs.

As regards surveys of nutritional status it is virtually impossible to make any valid comparisons as between the pre-war and war years. It is to be hoped that this gap in our knowledge will be remedied in future, so that we may have some means of measuring progress. It is to be noted that experienced physicians in regions of the South where pellagra has been most prevalent state that it is becoming ever more difficult to locate cases for teaching purposes.

We may now ask ourselves, why did the nutritive value of the American diet experience this improvement in wartime? In general it is clear that the improvement was due to the rapid advances in our knowledge of food and nutrition; these in turn being based on the fundamental work of food and nutrition scientists. It is evident that advances in fundamental science are potentially capable of bringing about the greatest improvement in human health and welfare. It would appear to be the part of wisdom to increase our efforts during the post-war years, training more workers and providing ample funds and facilities for fundamental research. This research should relate to human requirements as well as to the nature of foods; the physician and public health worker as well as the biochemist should be led to greater interest in the physiology of human nutrition.

The second cause of improved diets in wartime has been better management of our food resources. Before the war began, the Food and Nutrition Board of the National Research Council adopted tables of dietary allowances which have been used increasingly as standards of reference for production goals, for the rations of the armed forces, and for the calculation of dietary needs among liberated peoples abroad. There is great advantage in having a suitable goal for nutrition, and this has been furnished by the dietary allowances of the Food and Nutrition Board.

Certain specific measures furnish good examples of improvements which may be brought about in food management by advances in the science of nutrition. It will have been noted that there was a marked wartime increase in the thiamine available for civilian consumption. This came about, in the work of the special Joint Committee from whose report I have been quoting, "because three quarters of the wheat flour are now enriched," and it should be added that practically all white bread is now enriched by order of the War Food Administration. Much of the increase in riboflavin and niacin and some of the increase in iron is due to the same cause. It is interesting to note the Joint Committee's explanation for the 50 per cent wartime increase in the calcium intake in the United Kingdom. The committee states, "Approximately one-third of the increase in the United Kingdom is attributed to increased consumption of dairy products; the remainder is mainly due to the addition of calcium carbonate to flour."

Food management has greatly profited from the improvement in the statistics of food production and distribution. It will profit still more when systematic dietary studies and the routine appraisal of the nutritional status of samples of the population are regularly carried out.

Further gains in the nutritive value of the American wartime diet would have been made possible by the retention in wartime of all the pre-war social measures for the distribution of food; free or cheap milk in schools, school lunches, and the food stamp plan. Unfortunately these were based on the existence of food surpluses rather than on nutritional need, so that when the increase of purchasing power did away with surpluses, it proved impossible to retain most of these measures. It must be admitted that the increase in purchasing power, while benefiting some, did not necessarily reach all. Vulnerable groups exist even in wartime, and failure to provide for their nutritional needs will prove costly in future years.

The chief lesson to be drawn from our wartime experience with food and nutrition is that the aims of the Conference on Food and Agriculture at Hot Springs are reasonable aims, aims which we can achieve without too much difficulty. Since we have succeeded in improving the nutritive quality of the American diet in wartime, when so many obstacles had to be overcome, and when so much of our food had to be diverted to our Allies and the armed forces, it should be much easier to effect similar improvements when these obstacles no longer exist.

The Conference at Hot Springs recommended that governments should "immediately undertake the task of increasing the food resources and improving the diets of their people." Each government was urged "to study the food consumption habits and the nutritional status of its population."⁴ Once this information is available it should not be difficult for a rich country like ours to achieve the necessary production and to set about systematically improving the diets of the population groups whose diets do not measure up to optimal requirements. The low income groups in this coun-

try suffer disproportionately from sickness, and have generally unfavorable death rates. Infant mortality and tuberculosis death rates furnish strong evidence of the disadvantage under which the poor suffer. Bringing the diets of these groups more nearly up to full requirements will at a stroke wipe out one of their principal disadvantages. It will mean a public health advance comparable to that which took place when the teachings of Pasteur were first put into practice. And I have no doubt that concerted action among all like-minded nations to achieve freedom from want of food will

prove one of the best ways of promoting that full measure of international coöperation which is required to preserve world civilization from chaos and anarchy.

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Washington Metropolitan Health Council

The Washington Metropolitan Health Council was recently created under the sponsorship of the health division of the Council of Social Agencies. One of its first activities will be a comprehensive survey of health and hospital

facilities in Washington. Admiral Ross T. McIntire, Surgeon General of the Navy, is chairman of the survey committee. Dr. Herbert P. Ramsey is head of the health division of the Council of Social Agencies.

Current Tuberculosis Statistics in the United States*

MARY DEMPSEY, F.A.P.H.A.

Statistician, National Tuberculosis Association, New York, N. Y.

IN peacetime health workers have learned to expect a lowered death rate from tuberculosis each succeeding year, though they anticipate corresponding rises in wartime. Yet, even though 1942 and 1943 were war years, the tuberculosis death rate has continued to decline just as in peacetime; in fact, provisional data supplied by state health departments indicate that the tuberculosis death rate per 100,000 population in continental United States was 41.9 in 1943, compared with a final rate of 43.1 in 1942. This recent decrease was very reassuring in view of the expectation that wartime conditions would probably lead to a sizeable increase.

Such fragmentary data as are available for the first half of 1944 indicate that tuberculosis mortality is approximately the same as it was in the similar period of 1943. According to the Metropolitan Life Insurance Company, the death rate from tuberculosis was 42.6 per 100,000 industrial policy holders during the first seven months of 1944, compared with a rate of 41.5 for the same months of 1943. This very slight advance is offset by the fact that the current mortality analysis of the Bureau of the Census, based on a 10 per cent sample, shows an even more

insignificant *decline* in the first half of 1944.

Early this year it appeared that the long expected rise in tuberculosis mortality had actually materialized, since deaths in January were decidedly more numerous than in January, 1943. As 1944 progressed, however, it became evident that this sporadic increase in January was traceable to the wave of influenza and acute respiratory infections which swept the country in that month. Whether tuberculosis mortality will decline sufficiently in the latter half of 1944 to level off the January increase is problematical.

The tuberculosis death rate for 1944 will be materially affected by a factor not always given sufficient consideration. I am referring not to the number of deaths from tuberculosis which will have occurred during the year but to the fact that 5,500,000 of our healthiest young men and women were assigned outside continental United States on July 1, 1944; for that reason they are excluded from the population estimates on which death rates are to be based.

In the case of tuberculosis mortality this current practice of subtracting the number of men assigned overseas from the population estimates has a rather striking effect. Since practically all young persons serving abroad with the armed forces were x-rayed prior to their induction, it is obvious that very few deaths from tuberculosis are to be ex-

* Presented at a Joint Session of the Health Officers, Vital Statistics, and Epidemiology Sections of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

pected among their number in the next year or two.

For example, the population of the entire country on July 1, 1943, was estimated to be 133,942,410; this figure includes members of the armed forces stationed in this country but excludes those assigned outside continental United States on that date. By comparing this population estimate with the 56,178 deaths from tuberculosis in 1943 we get a death rate of 41.9 per 100,000 population.

On the other hand, the *country's total population including members of the armed forces stationed overseas* was 136,485,262 on July 1, 1943, according to the Census Bureau. Everyone must admit that only an infinitesimal number of deaths from tuberculosis was to have been expected in 1943 among the 2,542,852 members of the armed forces stationed outside continental United States since all had been x-rayed prior to their relatively recent induction.

Therefore, if the total population figure of 136,485,262 had been related to the 56,178 deaths from tuberculosis, the 1943 death rate would have been 41.2 instead of 41.9. In other words, the exclusion of 2,500,000 of the healthiest young men from the population estimate for the country has a definite tendency to result in an *apparently* increased death rate in the United States and in each state. This statement applies with particular emphasis to tuberculosis mortality because such intensive efforts were made to exclude tuberculous persons from the armed forces.

The tendency toward an apparent (rather than real) rise in the death rate will become far more noticeable when the 1944 rate is computed since at least 5,500,000 of the persons least liable to die of tuberculosis were stationed outside the country on July 1, 1944. If the same number of persons were to

die of the disease in 1944 as in 1943, use of a population base which excludes 5,500,000 would result in a death rate of 42.9 instead of 41.9.

In spite of the fact that in continental United States the provisional death rate from tuberculosis was 2.8 per cent lower in 1943 than the final death rate for 1942, the 1943 mortality from the disease represented an increase in 21 states when compared with their rates for 1942.

The most interesting trend noted in 1943 is the fact that so many of these increased death rates are concentrated in the industrial states of the north-eastern and north central sections of the country, while even more pronounced declines are observed in the states of the South and West.

According to one theory, these increased rates in our industrial states may presage rising mortality from tuberculosis in the country as a whole; others are of the opinion that the stupendous migration of the past few years may have resulted in a realignment of the American people—to some extent, at least, on health grounds. Only time can determine which of these two hypotheses is correct.

The abnormal conditions incident to the war have affected the population distribution in the states more than is usually realized. Internal migration, both civilian and military, has resulted in decreased population in the north-eastern and north central states, while in the South and West the population has increased materially since the date of the last decennial census in 1940.

In addition to the assignment of millions of our young people overseas, many more millions of healthy young citizens have likewise been assigned to training camps which are largely concentrated in the states of the South and Far West where climatic conditions facilitate military training throughout all months of the year.

Simultaneously other millions of all ages whose state of health is unknown have migrated to and fro without pattern in search of industrial employment. It is quite possible that this population upheaval which has no parallel in American history will affect the trend of tuberculosis mortality in the states for years to come.

The difficulties of computing sound death rates in these days of major population shifts cannot be appreciated until one makes an effort to obtain population estimates for a given date, to evaluate the extent of the changes

in a given community, and to analyze the effect of the population changes on the death rates.

Changes in the *size* of a state's population are allowed for when death rates are computed on the basis of the best available population estimates. But changes in the *age, sex, and color composition* of the population cannot be taken into consideration until a new population census has been taken; and no population census will prove to be worth while until the people of the country have had a few years to settle down after the war.

Discussion

J. T. MARSHALL

Chief, Vital Statistics Branch, Dominion Bureau of Statistics, Ottawa, Canada

I BELIEVE my assignment in opening the discussion of Miss Dempsey's paper is to bring into line a short report on the current experience of tuberculosis trends in Canada during the war period. The figures are not available at the present time to assess fully the effect of wartime conditions upon tuberculosis in our country. In fact, it is questionable whether the true effect of many of these conditions can be accurately measured with our existing facilities and at the present time we have only four criteria which may be used to measure some of the important factors which have a bearing on the trend of tuberculosis. These are:

1. The death rate
2. Case finding or reported known cases
3. Hospitalization
4. The stage of the disease at the time of diagnosis

DEATH RATES

Our Canadian figures show that for the five years prior to the war period the mortality rate from tuberculosis de-

creased from 60 to 53 per 100,000 population, while the rates for the four years 1940 to 1943, inclusive, were respectively 51, 53, 51, and 52 per 100,000. The 1943 figure which shows a slight increase over 1942 when broken down according to provinces, shows that eight of the provinces recorded increases in the death rate while one showed a decrease.

CASE FINDING

The number of reported new tuberculous infections has increased in the Dominion from 9,090 in 1938 to 12,361 in 1943. The increase in the incidence, however, should not be measured by the difference in these figures as the comparability factor has been disturbed to an appreciable degree by mass surveys. For instance, in 1943, 380,000 persons were examined in the clinics throughout the country and by mass surveys.

Out of a total population of 11,500,000, 1,500,000 have been x-rayed in the Armed Forces since the war started. In both these groups, approximately 10 per

1,000 persons examined showed tuberculosis, and 3 per 1,000 examined had active tuberculosis.

In the Dominion Civil Service 30,260 employees were x-rayed in 1943, and were found to have a tuberculosis rate of 19 per 1,000 examined. The active rate for this group was 4 per 1,000 examined.

It is interesting to note that in the August 12, 1944, issue of the *Medical Officer*, published in England, W. B. Brooks reports the results of his investigation of 473,372 male ratings, of which number, 12.7 per 1,000 showed abnormal radiological shadows, 6.1 per 1,000 were minimal adult type of pulmonary tuberculosis, and 0.9 per 1,000 examined were active.

Of 23,000 Wrens 9.1 per 1,000 showed abnormal shadows and 0.9 per 1,000 were active cases of tuberculosis. These were all apparently healthy and had undergone routine physical examinations before joining the Navy.

While the rate of cases found in the Civil Service survey is high when compared with other surveys of selected groups of population, it must be remembered that this group is not only drawn from all parts of Canada but they represent (1) a group of people who have never been examined previously for tuberculosis; and (2) a group which have been excluded from military service on account of physical defects, so it would appear that a higher rate of tuberculosis incidence in this group was to have been expected.

HOSPITALIZATION

One of the real problems in Canada today in the battle against tuberculosis is the shortage of beds. The Canadian Tuberculosis Association, in a recent survey of the situation, found that 8,000 more beds were required in the sanatoria immediately. Another problem in hospitalization has been the shortage of staff personnel. The sana-

toria are now operating with only 86 per cent of the staff positions filled, as judged by pre-war standards. There has been relatively little change in the number of beds in use—an increase of 10.7 per cent in four years. The number of persons under care has been increased in approximately the same proportions.

STAGE OF DISEASE AT TIME OF DIAGNOSIS

In reviewing our Canadian statistics under this particular heading with regard to tuberculosis, we find some very encouraging factors. The percentage of minimal cases admitted to the sanatoria has increased from 17.5 in 1939 to 21.9 in 1942, while the percentage of those whose condition was far advanced has decreased from 50.4 to 44.5.

A marked improvement has been shown in some of the provinces in the time elapsed between diagnosis and admission to sanatoria. The percentage admitted within one month of diagnosis has increased from 55 to 89 per cent in Ontario, from 48 to 85 per cent in Alberta, and from 47 to 91 per cent in British Columbia.

These four factors would seem to indicate that while the general downward trend of the death rate has been arrested, there is every evidence of an improvement in the general situation. There are no indications of any greater increase in the industrial areas compared with the rural and other urban sections of the country, but we must remember that it may be too early yet to measure the ultimate effect upon tuberculosis in Canada of the longer hours and increased tempo of working conditions under the impetus of war.

The policy of x-raying all recruits for the armed forces would appear to have been more than justified. Relatively few cases of tuberculosis have developed during the first eighteen months following enlistment. While there has

been a tendency for the incidence of pulmonary tuberculosis to rise as time goes on, this incidence is still markedly below that in the civilian population.

A point that might be of some interest is the policy in regard to the treatment of the tuberculous veteran. Following World War I, the policy was adopted of utilizing provincial tuberculosis services. There has been no change in this policy and only where beds are not available are tuberculous veterans treated in veterans' hospitals.

This policy avoids duplication, as-

sures the veteran of the best tuberculosis services available, and it is believed that the veteran is more likely to remain on treatment as long as required, than when treatment is undertaken in veterans' hospitals. Another advantage is that the same services will be treating the veteran as will be carrying out the supervision of the veteran's family.

We trust that the present levelling off of the death rate curve is merely one of those periodic halts in its downward trend.

Dr. A. B. Wadsworth Retires

The retirement of Dr. Augustus B. Wadsworth, Director of the Division of Laboratories and Research of the New York State Department of Health, Albany, after 31 years of continuous service was announced by Edward S. Godfrey, Jr., M.D., State Commissioner of Health, on February 1. Dr. Wadsworth assumed charge of the laboratory service of the state in 1914 when the laboratory included nothing more than a converted stable and a frame dwelling and had a staff of 17 persons carrying on limited activities. Under his direction

the laboratory has grown into a modern institution, recognized throughout the country and abroad as a leader in the field. The state laboratory, together with a system of approved local laboratories now numbering 125 in the state, made in a recent year more than 6,000,000 examinations.

Dr. Wadsworth joined the Association and the Laboratory Section in 1914 and has been a Charter Fellow since 1922. He has served the Section in many offices, most recently as Section Archivist.

Veterans' Preference in Public Health Agencies of the United States

Declaration by the Committee on Professional Education
American Public Health Association *

THE Committee on Professional Education, in conformity with its charter, is carrying out studies and research in the problems of public health as they affect the qualifications and experience of the persons employed. It is apparent that the matter of preference for veterans will constitute an important consideration in the near future and, in response to requests from civil service and merit system agencies, the committee records its considered judgment as follows:

The proper placement of returning veterans who may be interested in entering or reëntering the public health field represents an important obligation which must be intelligently handled. Those responsible for the establishment of personnel procedures in public health share with all personnel administrators an obligation to give due consideration to the claims which returning veterans have for vocational placement in public health. Veterans may rightly expect some special consideration. It is a challenge to every personnel administrator to put to the best use in the public service the abilities and aptitudes which unquestionably exist among the veterans.

One aspect of this problem which is of immediate concern is the attempt to meet it by the enactment of legislation giving varying degrees of preference to veterans seeking employment in the

public service. In the majority of states, and in the federal government as well, the question of whether or not veterans should be given such preference has been decided in the affirmative. It remains now to frame legislation which will be reasonable and fair so that it will jeopardize neither the vocational future of the veterans themselves by placing them in positions for which they may not be qualified, nor the effectiveness of the institutions which serve them and all other citizens.

The Committee on Professional Education finds itself in agreement with the conclusions reached by the Executive Council of the Civil Service Assembly of the United States and Canada which has pointed out that, in shaping public policies for the speedy and effective reabsorption of demobilized veterans into civil life, the nation's citizens now face a problem which must be solved promptly and wisely. In so doing they will wish to deal fairly with the men and women who comprise our armed forces and at the same time to maintain the efficiency of the public services in the United States, federal, state, and local.

Of the 12,000,000 or more veterans who will return to civilian life during and after the war, there will be several thousand who will enter public service in the various specialties of public health. Among these there will be young men and women with well prepared minds, indomitable energy,

* Authorized for Publication by the Executive Board, January 26, 1945.

splendid character, and many specialized aptitudes and skills. Most of them will return with capacities unimpaired and with an increased appreciation for the American way of life. We share with the Civil Service Assembly a conviction that with them we can build a public service better than any we have known before. In so doing, however, we must be wise enough not to blunder into excesses of special privilege and administrative practice which experience shows would critically impair the efficiency of the public service and thereby damage the very institutions which these veterans have risked their lives to preserve.

The Committee on Professional Education desires to associate itself with the Civil Service Assembly in the following statement of policy:

The problem resolves itself into three major components as follows:

- A. The development of equitable and administratively practicable policies for the reinstatement of employees who have left their civil service positions to enter the military service.
- B. The development of sound and reasonable policies in those instances where responsible policy-forming bodies deem it to be in the public interest to afford certain degrees of preference to war veterans who seek to enter the public service.
- C. The adjustment of administrative policies and procedures of public personnel agencies to facilitate veteran rehabilitation to the fullest extent possible.

RECOMMENDATIONS REGARDING REINSTATEMENT OF FORMER EMPLOYEES

1. Public employees who have achieved permanent status in their positions, and who are on military leave, should be entitled upon demobilization to reinstatement or reemployment in

their former positions or in similar positions. They should be required to make application for reemployment within 90 days after their discharge or release from military service.

2. Employees who return from military leave should be entitled to the privileges that would have been accorded them had they continued in their civil positions, including annual salary increments for satisfactory service, when such increments are authorized by law; seniority credit for continuity in the civil service; eligibility to compete in promotional examinations given during their absence, and for which they would otherwise have been eligible; sick and vacation leave accrued and unused by the employee at the time of entrance into the military service; and credit toward civil retirement for the period of military service.

3. Returning employees who have been disabled during their military service to the extent that they are incapacitated for performing their former duties should, wherever possible, be readjusted in the service by reassignment or transfer to other duties for which they are qualified.

4. Requests of employees returning from military service who seek leave to avail themselves of veteran benefits, such as attendance in educational institutions, should be considered on the same basis as other requests for leave of absence which take into account the administrative necessities of the public service.

RECOMMENDATIONS REGARDING THE SUBSTANCE OF VETERANS' PREFERENCE POLICIES

5. Veterans' preference policies that may be adopted should recognize the democratic principle of open competition for public employment on the basis of merit and fitness, and should not by their terms or operations serve to exclude unduly the rising generation from

its rightful opportunity for public employment.

6. The term "veteran," as used in this report, should be understood to mean a person who has been a member of the armed forces during the period of actual hostilities.

7. Veteran preference policies should include the maintenance of proper minimum qualifications and standards for entrance to the public service.

8. Veterans should be required to obtain a passing mark in competitive tests before being entitled to preference consideration.

9. Preference should be confined to examinations for entrance into the service, and should not be applied to promotions within the service.

10. Preference should take the form of credit points added to the earned examination rating, and the veteran's standing on the eligible list should be determined on the basis of such augmented rating. While the disabled veteran may appropriately be given an added margin of preference in the form of a greater number of credit points added to his earned rating, no veteran should be entitled to be placed automatically at the top of the eligible list unless his augmented rating places him there.

11. The amount of preference credit to be given to non-disabled veterans should be not more than 5 credit points on the basis of 100, and the amount of preference credit given to disabled veterans should be not more than 10 credit points on the same basis.

12. The right of a veteran to additional point preference for disability should be based on the findings of the United States Veterans' Administration, and should be accorded only to those veterans who have at least a 10 per cent compensable disability rating. The disability should be compensable at the time of the veteran's application for preference.

13. Preference for veterans should be limited to a period of five years after the war, or five years after discharge or release from war service, whichever date is later.

14. Retention in the service in the case of reduction in force or abolition of positions for lack of work or funds should continue to be based solely on ability properly to perform the duties of the position, and on relative length of efficient service.

RECOMMENDATIONS REGARDING ADMINISTRATIVE POLICIES OF PUBLIC PERSONNEL AGENCIES RELATING TO VETERANS

15. Experience gained in military service should be properly evaluated and considered in determining the qualifications of candidates for positions to which such experience is relevant.

16. Training and education received through official military agencies should be properly evaluated and recognized in giving credit toward civil service eligibility and in rating education and experience.

17. Programs of instruction given during or after military service designed to equip veterans for public service careers should be given legislative support and administrative recognition.

18. Public personnel agencies should seek to integrate their own facilities with those of officially designated veteran facilities in their respective jurisdictions to promote efficiency in veteran placement, training, counseling, rehabilitation, and other similar aids to veterans.

The Committee on Professional Education believes that these recommendations are sound and practicable for public employment of nonprofessional personnel, and considers that adherence to them is fair and reasonable in the case of many of the positions in public health departments. At the same time, the committee wishes to record its con-

sidered opinion that no form of veterans' preference should be adopted which will interfere with the selection of highly qualified persons in professional positions. It cannot be too strongly urged that life and death depend upon the decisions and actions of many of those charged with the protection of the public health. It is therefore imperative that the best available person should be entrusted with this responsibility. This is especially true in positions which involve policy making or in which critical decisions must be made. With these considerations in mind, the committee concludes that absolute preference cannot be de-

fended in the case of professional positions in the public health field. The justifiability of this position has been recognized by the United States Congress in the formulation of the Federal Veterans' Preference Act which provides no absolute preference for professional and scientific services for which the entrance salary is over \$3,000 per annum. For the sake of the public good, including that of the veterans who will constitute a very substantial part of the post-war population, nothing must be allowed to interfere with the development of the highest type of service from those responsible for the public health.

Children's Bureau Plans for the Future

The *32nd Annual Report* of the Secretary of Labor, recently published in Washington, is concerned in an important way with the activities of the Children's Bureau. "As the time for final victory draws nearer, the Bureau, in coöperation with other agencies, has begun to explore some of the ways in which demobilization and reconversion will affect family life and the welfare of children and youth, and the measures that will be necessary to assure the health, education, and welfare of children and young people throughout the nation."

The recommendations of the report on health services and medical care for mothers and children are as follows:

1. Legislation should be enacted, separately or as part of an inclusive national health program, to provide federal aid to the states to enable them to expand existing health services

and provide additional services for maternity care and for health supervision and medical care of children from birth through adolescence. Such services should be fully available in every county or other local administrative unit in the United States.

2. Medical care programs should be developed around health centers and hospitals in which facilities for diagnosis, consultation, and health education are fully available. The program should include the organization and development of health and medical services for school children, including those in high school, through health services in the schools and diagnostic and treatment services in the community.

3. The crippled children's program, which now reaches only a minority of children in need of special attention, should be expanded so that all physically handicapped children in need of service will have access to it. Special emphasis should be given to a nation-wide plan for care of children with rheumatic fever and with heart disease resulting from rheumatic fever, one of the most important causes of death in childhood.

Engineering Technique Applied to Restaurant Sanitation*

W. SCOTT JOHNSON, F.A.P.H.A.

*Chief Public Health Engineer, State Board of Health of Missouri,
Jefferson City, Mo.*

AN analysis of recently intensified efforts of many health officials to secure better restaurant sanitation reveals (1) the fundamental soundness of an educational approach, and (2) the necessity for the immediate development and application of more effective sanitary engineering design and control of physical factors.

It is not my purpose to discuss the pros and cons of the educational approach to restaurant sanitation, except to point out that one phase of a restaurant sanitation educational program requires not only a knowledge of why certain conditions are unsafe but also the ability to give sound, accurate advice on how to secure satisfactory remedies. It is not much help to the restaurant owner or to the cause of better sanitation to point out that the contact time for dish sterilization is too short, unless effective means for correcting this defect are readily available.

The development of the control of environmental sanitation involves a bacteriological study of methods that will destroy causative organisms and the engineering design of equipment which will assure the necessary bacterial control. This sequence has been repeated numerous times in the past

with proven results. Most of us recall the developments in improving milk sanitation following the application of more rigid sanitary engineering design to milk processing equipment. From the standpoint of the public health administrator, there is at this time a pressing need for the development of better designed equipment and a more practical application of positive control methods for many features of restaurant sanitation. If, as we are told by the bacteriologist, it is essential for health protection that certain foods be kept below a determined maximum temperature, or that utensils be subjected to specified methods of disinfection, then these requirements are a logical part of modern restaurant sanitation programs. However, at the present time the objectives of many of these requirements are not being attained and will not be until sanitary engineers greatly improve design features of kitchens and restaurant equipment, and develop practical and more dependable control methods. Obviously, a health official is in a difficult position when an ordinance requires methods or results beyond practical attainment. A few examples from experience actually encountered in the field will illustrate.

Frequently we have been asked to give the size of a kitchen necessary to handle a specified load, and state how

* Presented at a Joint Session of the Engineering and the Industrial Hygiene Sections of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

we would recommend arrangement of equipment in the kitchen and location of various operations. When a kitchen has been properly criticised on account of its size or the arrangement of its contents, it is not unreasonable for the owner to expect reliable recommendations for securing necessary corrections. It would seem not only desirable but practical to develop typical floor plans and minimum areas for kitchens, adequate cabinet space for storage of eating utensils and table area, based on, for example, the estimated meals to be served per day. Such data should also include recommendations concerning proper plumbing installations since many installations of unsafe plumbing have been noted in restaurants. Rat proofing of restaurants is highly desirable for economic as well as sanitary reasons, and standard methods and specifications for securing this should be made available by health departments.

The problem of adequate refrigeration space and the need for being able to make specific recommendations are critical from the health standpoint. According to the U. S. Public Health Service, 37 per cent of the food epidemics in 1942 were due to faulty refrigeration. Inadequate refrigeration is one of the most common defects found in eating establishments, and it is aggravated during warm weather because of increased quantities of food and dishes that require refrigeration. The experienced restaurant owner seldom knows, and we have failed to find reliable information showing what a reasonable figure for icebox capacity based on the meals served per day should be. It is not only a question of having sufficient room to store food that must be refrigerated, but also that of the proper cooling of food stored within the refrigerator when it is loaded to excess.

The type of refrigeration and its

location and design for most convenient use are well worth more careful consideration. A partially completed study of this engineering problem would tentatively indicate that an icebox capacity of 0.15 to 0.25 cu. ft. per meal served per day is approximately correct to prevent overloading. This also raises the question of icebox temperatures which are usually found very close to 50° F. and too frequently higher than that. The importance of adequate refrigeration would indicate the necessity of engineers devising a suitable temperature recording and control device for the icebox similar to that used on milk pasteurization vats, in addition to suitably placed indicating thermometers.

Dish and utensil washing and particularly sterilization offers an exceptionally fertile field for better control and operation by the application of improved engineering design. This problem, particularly mechanical dishwashing, has been given careful and very constructive thought by a committee of this organization. However, to a very large degree, recommendations have not yet been applied to machine design. Time and temperature or chemical concentration are of course the factors responsible for producing satisfactory utensil sterilization. However, as those in restaurant sanitation work too well know, temperature is seldom adequately maintained, and time and chemical concentration are almost never accurately controlled. Many mechanical features of dishwashers need improvement in design and construction. The location of thermometers is frequently unsatisfactory; details of design that would greatly aid cleaning are lacking; easy disassembly and assembly for repair and cleaning is usually overlooked; the optimum volume and pressure of wash and rinse water have probably not received the attention warranted either in design or operation; and detergent dis-

pensing by mechanical automatic means leaves much to be accomplished.

We have encountered a number of instances where a restaurant owner was put to considerable extra expense due to lack of adequate engineering information concerning hot water capacity necessary for operating dishwashing equipment. In one instance, the original installation proved to be only half the capacity finally needed as determined by trial-and-error method. There are available various methods for supplying hot water, but in every case capacity is a major consideration. A hot water supply of one restaurant was secured from the central water heater which supplied hot water for the entire building. This presented a problem because of the difference in temperature required for normal purposes and for sterilizing dishes, a consideration overlooked in the original design and installation. Probably the most universal example of inadequately designed sanitary equipment for washing and sterilizing dishes occurs at the numerous and popular soda fountains. Undoubtedly lack of space and need for emphasizing appearances makes this a difficult problem, but certainly it is not insurmountable. However, it is most essential that the manufacturers of fountain equipment be persuaded to develop satisfactory design that will fit into and meet the restrictions of the complete fountain set-up.

When manual methods of dishwashing are used, the efficiency must be viewed with great skepticism, since the control is in the hands of the poorest type of help and the time element for securing disinfection is largely an indirect ratio to the number of dishes to be washed. In many cases the solution to this may involve the rather simple determination of the minimum number of dishes necessary to handle a maximum load satisfactorily with given dishwashing facilities. There are many in-

stances where manual dishwashing and disinfection is the only practical procedure and certainly it is vitally important that better designed methods be developed.

There are several other neglected design features that to greater or less degree affect restaurant sanitation. The most important ones are: really effective ventilation of the kitchen; materials used in construction of utensils and equipment; design of slicers and grinders, so that cleaning is easy and effective; satisfactorily planned and executed garbage disposal. Steam tables are widely used but the effect on food stored for many hours at desirable temperatures, which probably meet incubation requirements of certain bacteria, and the sanitary significance of this practice have never been investigated as far as I know.

These are some of the most important environmental factors in restaurant sanitation that lend themselves to better sanitary engineering design and control. Further, the application of proven sanitary engineering principles more completely to restaurant sanitation appears to be feasible based on past performances in other fields. The design capacity and performance rates of various units that make up a water treatment plant or milk pasteurization plant have been sufficiently developed that a well balanced design is feasible based on known demands. Within reasonably narrow limits the maximum capacity of a given restaurant expressed in number of persons or of meals served in a given time is determinable. With this figure established, all necessary facilities such as refrigeration space, dishwashing capacity, number of dishes and utensils required, etc., can be estimated, and we should within reasonable limits be able to present more exactly the essentials for good restaurant sanitation. Such an approach will not only assure added safety and better

control of food epidemics but also provide a necessary service to the industry that should add greatly to the support and acceptance of the health official's program by restaurant management.

To bring about the universal use of the essentials necessary for good restaurant sanitation warrants consideration to the following recommendations: (1) the development of satisfactory standards for all phases of restaurant sanitation; (2) logically at the federal level, that an effort be made to bring all manufacturers of restaurant equipment to agree to the incorporation of proved essential sanitary design into their equipment; (3) that serious consideration be given by local enforcement officials to some procedure whereby plans for restaurants and food handling equipment be submitted for review and approval by the official agency before construction is begun or a purchase made.

With a growing interest and demand for better restaurant sanitation it is high time the sanitary engineer accept the obligation as well as the opportunity that has been too long neglected in this field of environmental sanitation. The application of sanitary engineering technique to this problem has been in the past and is today prominent by its absence. Here lies an undeveloped field almost entirely engineering in nature that is crying for attention and effective study as a solution to a number of important sanitary problems.

ACKNOWLEDGMENT is gratefully made to all those concerned with restaurant sanitation in Missouri for their contribution to the problems discussed in this paper; particularly R. W. Hart of the U. S. Public Health Service; Leonard Board, St. Louis County Health Unit; and Percy Johnson, until recently with the State Board of Health, now with New York University; and to our Secretary, John Hepler.

Industrial Medical Examinations in South Carolina

According to the *Industrial Hygiene News Letter* of the U. S. Public Health Service, a mass movement toward physical examination of employees in the textile mills of South Carolina has resulted from efforts made by the Division of Industrial Health of the State Board of Health to educate manufacturers in the advantages of an active health program.

Nurses of the Division carried the message from one mill to another.

Leading mills, with personnel services including good health programs, were having so much less trouble securing and keeping capable workers that less progressive mills became convinced of the competitive advantages to be obtained from placement based upon pre-employment examinations and periodic follow-up examinations. The improved economic position of the textile mills at the present time is making rapid development in this direction possible.

Sanitary Aspects of the Control of the 1943-1944 Epidemic of Dengue Fever in Honolulu*

WESLEY E. GILBERTSON, P. A. ENGINEER (R), F.A.P.H.A.

Malaria Control in War Areas, Atlanta, Ga.†

DENGUE fever again made its appearance in epidemic form in Honolulu, Territory of Hawaii, in 1943, after an absence of over thirty years. The first two recognized local cases were reported to the Board of Health as having had an onset on July 24, 1943. It is probable that the disease was imported from the Southwest Pacific. This supposition is primarily based on the knowledge of the cases of two airlines pilots who were hospitalized with dengue in Honolulu earlier in July after arrival from Suva, Fiji Islands, where an epidemic of dengue had been reported. One of the pilots was already ill when he came to Honolulu, but the other had onset of symptoms several days later and was not isolated by hospitalization until he had passed through the infectious period.¹

Earlier dengue outbreaks in Hawaii occurred in 1903 and 1912.²⁻⁴ In 1893, an outbreak of disease occurred, known to the natives as "Boo-hoo fever," which had dengue-like symptoms.² Judging by the reports of government physicians and other available information, the 1903 epidemic was severe, affecting a large portion of the Terri-

tory's population. Records of the 1912 outbreak are incomplete and, though it appears that this epidemic was milder, doctors and older residents state that only a fraction of the cases were recorded.

Dengue fever is an acute virus infection, endemic in most tropical and subtropical areas. It invades temperate zones in the form of explosive, widespread epidemics. The disease has an incubation period of 4 to 15 days⁵ and is characterized by sudden onset with high fever, severe headache, backache, and post-orbital pain. In Honolulu the "saddle-back" temperature curve and terminal macular-papular rash were often, though not always, observed. The average duration of illness was 10.5 days.

The vectors of dengue fever in the Hawaiian Islands are: *Aedes aegypti* (Linnaeus) which breeds in artificial containers such as bottles, tin cans, flower vases, and tanks; and *Aedes albopictus* (Skuse), which breeds in artificial containers and in natural containers such as tree and rock holes and water-holding plants.⁶

Most dengue epidemics have spread so fast and become so widespread that little or nothing could be done to control them. Usually they have been stopped by the first frost or by depletion of the non-immune population. In the past it has been almost impossible

* Presented before the Engineering Section of the American Public Health Association at the Seventy-third Annual Meeting, New York, N. Y., October 5, 1944.

† Formerly in charge, Dengue Mosquito Control Board of Health, Territory of Hawaii.

to get an accurate record of the number of cases. From the standpoint of public health, the Honolulu dengue epidemic is unusual in the following respects:

1. It is believed to be one of few outbreaks of such proportions to be suppressed largely by mosquito control.
2. Almost all of the cases which occurred were reported to the Board of Health.
3. Every reported case received at least one epidemiological visit.

FIRST INFECTION IN WAIKIKI DISTRICT

That portion of Honolulu situated along the Waikiki Beach became the first focus of infection of the 1943-1944 epidemic. Many cases appeared among employees of the inn where one of the airlines pilots had stayed prior to being hospitalized. By August 8, dengue had spread sufficiently to cause military authorities to declare Waikiki "off-limits" for troops.

The Territorial Board of Health took immediate action to control the epidemic. Nine inspectors of the Rat and Mosquito Control Squad of the Chamber of Commerce were then available and were soon supplemented by 24 new men employed with Chamber of Commerce funds. Five soldiers were also assigned by the army because of the military importance of the work. These men worked as a crew, covering Waikiki, and later the city, section by section. They made routine exterior premise inspections, eliminated mosquito breeding and suggested corrective measures to householders.

In addition to these efforts, an educational campaign was carried on by the Board of Health. Newspaper articles were released daily and radio time was given for the discussion of the dangers of a widespread epidemic. Printed instructions were distributed by the Office of Civilian Defense wardens requesting householders to spray with insecticide and eliminate all water-holding containers.

In spite of these precautions dengue increased, especially in the Waikiki area. The danger of an explosive epidemic was obvious to public health and military authorities in this critical war area. The effect of thousands of cases of dengue among military personnel and the war-connected civilian population in the principal base of the Pacific Ocean might have been disastrous. During the latter part of August all premises in the Waikiki area were sprayed with insecticide at the suggestion of Brigadier General Edgar A. King, Surgeon, Central Pacific Area, U. S. Army, utilizing high-pressure Chemical Warfare Service decontamination truck sprayers. Upon request for assistance, the U. S. Public Health Service assigned an engineer and an entomologist to the Board of Health about September 1, to assist in organizing a control program.

CITY-WIDE CONTROL PROGRAM

By September 1, 148 cases had been reported, many scattered throughout Honolulu, thereby ending all hope of confining the epidemic to the Waikiki district and making it essential to inaugurate city-wide *Aedes* mosquito control at once. Due to critical war construction activities, recruitment of civilian employees was very difficult but 13 men were hired in two weeks, and these, added to the previous squad, together with 50 soldiers assigned by the army, gave a total staff of 96, which began work on September 15.

Each man was equipped with an identifying armband and a kit which consisted of: kerosene, Paris green and phenothiazine larvicides; mirror and flashlight for inspecting containers; chalk for marking arrows on sidewalks to guide his foreman; pencils and record sheets; "Notice to Householder" forms; educational pamphlets; and a pipette and vials for collecting larval samples.

Honolulu was divided into 3 districts and subdivided into 77 inspection zones, each zone of such size that one man could inspect every premise, interior and exterior, on a 10 day cycle. The inspectors were grouped into crews, averaging 6 men, and a foreman was placed in charge of each crew. A supervisor was assigned to each district in charge of four crews.

METHOD OF OPERATION

Each morning the foremen transported their crew members to the point in their zones where they had stopped work the previous day. Thence, the inspectors proceeded on foot from premise to premise. They contacted the householders whenever possible to state the purpose of the inspection and to instruct them to eliminate mosquito breeding places found on their premises. Written notices were left when no one was at home. Definite action was taken on every mosquito breeding place. The inspectors made all possible corrections by inverting containers or treating them with larvicide. Difficult problems were referred by the inspector to his foreman who either eliminated the trouble or forwarded the matter to headquarters for action by a special activities crew. Every inspector was trained to differentiate between *Aedes* and *Culex* larvae. Records of inspection findings were made in order to compute mosquito breeding indexes. Official abatement orders were issued by headquarters to chronic violators.

Aedes mosquitoes were found breeding in all sizes and types of containers. All of the usual varieties of receptacles found in continental United States were observed in Honolulu. The new problems encountered were due principally to the sub-tropical vegetation which abounds in parts of Honolulu. This includes plants having cups which can hold as much as one-half pint of water, such as spider lilies, pineapple lilies,

and ape plants (also called Samoan taro); rotted-out holes and crotches in poinciana, algarroba, haole koa (a small *Acacia*) and guava trees; bamboo and banana stumps; and the large water pockets in traveller's palms. Other unusual breeding places were found in fallen palm fronds, air raid shelters, and in the holes of lava-formed rocks and pockets in emerged coral reef formations. In over a million premise inspections *Aedes* mosquitoes were found breeding only four times in ground pools with earth sides.

The effective flight range of *Aedes aegypti* has long been known to be about 75 to 150 yards. Observations on *Aedes albopictus* indicate that the flight range is probably not much greater than that of *aegypti*. Therefore, the control zones extended only to the fringes of the inhabited area.

EPIDEMIOLOGICAL RECORDS UTILIZED

Maximum use was made of the epidemiological findings. Confirmed and suspected cases of dengue were reported daily from the Bureau of Communicable Diseases and a crew of "trouble shooters" was dispatched to spray and inspect the premises on which cases had occurred and other premises in the neighborhood immediately surrounding them. It was found that less than 60 per cent of the cases were reported within 3 days after onset of symptoms. This was due to delay in calling physicians, difficulties of diagnosis, and slow reporting. The average period of infectivity of a dengue patient is from the day before onset to 3 or 4 days afterwards.⁷ Therefore, although a public health nurse visited each patient to set up a bed net to prevent the infection of additional mosquitoes, the effectiveness of this activity was limited by the lag in reporting. A mosquito becomes infective 8 to 11 days after biting an infectious patient and remains infective for life.^{5, 7} Thus the destruc-

tion of adult mosquitoes was of primary importance.

The "trouble shooters" used self-contained pressure hand sprayers for interior spraying with kerosene-diluted 2 per cent pyrethrum extract as the active agent, and liquefied gas as the carrier and propulsive agent. These sprayers produce a dry, fog-like spray. Windows and doors of buildings were closed for at least five minutes during and after spraying. The sprayer nozzles were removed to obtain a powerful, far-reaching spray to treat the undersides of residences which were open to mosquitoes. The source of infection and places of contact during the period of infectivity of the patient, if obtainable from the case history, were also sprayed.

SECOND FOCUS IN KAKAAKO AREA

As would be expected, a time lag occurred between inauguration of expanded control activities and the first noticeable decrease in the number of new cases reported each week. During this interim the second major focus of infection developed in the congested Kakaako section located adjacent to the business district near the center of the city. The initial point appears to have been in a large business plant, employing about 300 persons, which failed to carry out spraying activities as had been requested. The situation reached a climax when over 70 employees were ill with dengue at one time and the plant was requested to shut down for a half-day while a portable engine-driven power sprayer was brought in to kill adult mosquitoes. Many cases, residing in the Kakaako district and elsewhere in Honolulu, were traced to this spot.

After the spraying of the initial focus in Waikiki, a definite decrease could be observed in the number of cases occurring in that area. It seemed likely that the sharp reduction was due

more to the destruction of adult mosquitoes by spraying than to the recently inaugurated larval control phase of the program. Waikiki was sprayed with undiluted commercial fly spray at a cost of about \$3,000. The insecticide burned some foliage in the gardens but the results justified the means. Pyrethrum extract was available for spraying the Kakaako district and an emulsified spray was made from a stock solution which consisted of equal parts of kerosene and 2 per cent pyrethrum extract with a small amount of wetting agent added (1 lb. of vatsol per 400 gal. of spray). When used, the stock solution was diluted at the rate of 3 parts to 100 of water. The spray rigs were truck-mounted and operated at a pressure of 400 lb./sq. in. with two spray guns in use. Both standard army spray guns and tommy-gun sprayers with 1/32 in. orifices, were utilized with excellent results. Each truck crew covered about 85 premises per day. A satisfactory lethal effect on mosquitoes was obtained without injury to plants.

The spraying technique consisted of fogging the atmosphere with the spray, working from premise to premise, making certain to direct the spray into porches, under buildings, beneath eaves, into outbuildings, under debris and into shrubbery. Estimating the average effective height of the spray as 10 ft., the amount of pyrethrin applied is calculated to be about 0.231 gm./1,000 cu. ft. This provides a wide margin of safety over pyrethrin requirements for a closed air space and allows for the dilution caused by air currents and the shorter period of contact.

Simultaneously with the exterior power spraying in Kakaako, interior spraying was done by a crew equipped with hand sprayers. This was considered important because a majority of the buildings were not screened and many mosquitoes would otherwise have

opportunity to escape. Caged mosquitoes have lived as long as 73 days in Honolulu, and therefore every effort was made to destroy all mosquitoes in the areas of high dengue incidence.

When the Kakaako district was sprayed at the end of the first week of October, the daily total of new cases in Kakaako had already surpassed that of the Waikiki outbreak. At the same time a third focus of infection was discovered—the Buckle Lane-River Street area, another congested, slum-like district not far from the middle of the city. The spray crews were moved to this new focus after Kakaako was completed and before it had developed into a serious problem. Both the Kakaako and Buckle Lane-River Street areas were restricted to military personnel on October 23. Another section, near the extreme northwest end of Honolulu, was placed on the restricted list when a few cases appeared there but it never reached the proportions of a serious problem.

Other minor foci developed and these, together with large numbers of scattered cases, brought the total to 851 reported by the end of October. The peak of the epidemic was in the third calendar week in October, when 143 reported persons became ill. After that the epidemic curve fell at about the same rate it had risen, reflecting the general reduction in mosquito population. Near the end of December, it began to level off at about 10 new cases per week (Figure 1). Military authorities lifted all restrictions on December 30.

When the foci of infection became smaller, a portable gasoline engine-driven sprayer with 3 gal./min. capacity was utilized with good results. The same spray mixture was used as in the decontamination truck sprayers.

RESULTS OF SPRAYING ANALYZED

So far as is known, the technique of comprehensive spraying with power equipment for control of dengue fever

FIGURE 1

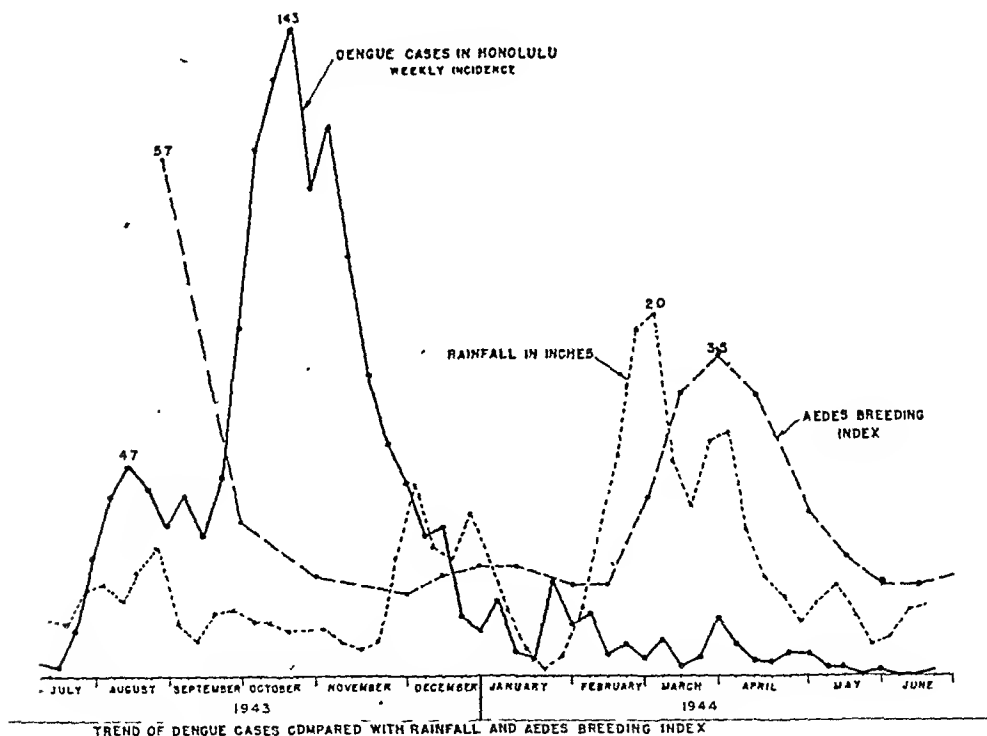
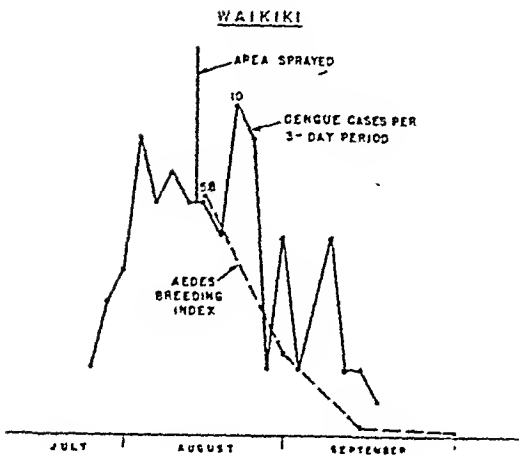


FIGURE 2



is unique. The need for such a massive attack has been described. In order to analyze the results, graphs are presented showing the rise of dengue incidence in three of these areas and the sharp decrease following the spraying operation. Since the maximum incubation period observed during the epidemic was $14\frac{1}{2}$ days, it is logical to expect a decreasing incidence when that period has elapsed after the spray treatment. In the Waikiki and Kakaako areas (Figures 2 and 3) the break came at 13 and 15 days, respec-

tively, while in Buckle Lane-River Street (Figure 4), the period was 6 days. In the latter two foci, additional areas were sprayed shortly after the initial coverage, when it was discovered that cases were appearing outside the delineated zones. Following this, a further sharp decrease in transmission occurred. The sprayed area in Waikiki was equivalent to 125 square blocks; Kakaako, 85 blocks; and Buckle Lane-River Street, 17 blocks. Five smaller foci of infection were attacked by spraying (McKinley High School, Hikina Lane, Pohaku Street, Iolani School-Judd Street and Kaluwahine Homesteads). In two instances it was necessary to respray small portions when infection reentered the areas months later. From the standpoint of controlling an epidemic in its incipient stages or later when it is in the process of spreading from zones of high incidence, comprehensive spraying is manifestly a valuable technique.

Special control activities included a vigorous clean-up campaign sponsored by the Chamber of Commerce. After this was completed it was yet necessary to set up a clean-up crew of about

FIGURE 3

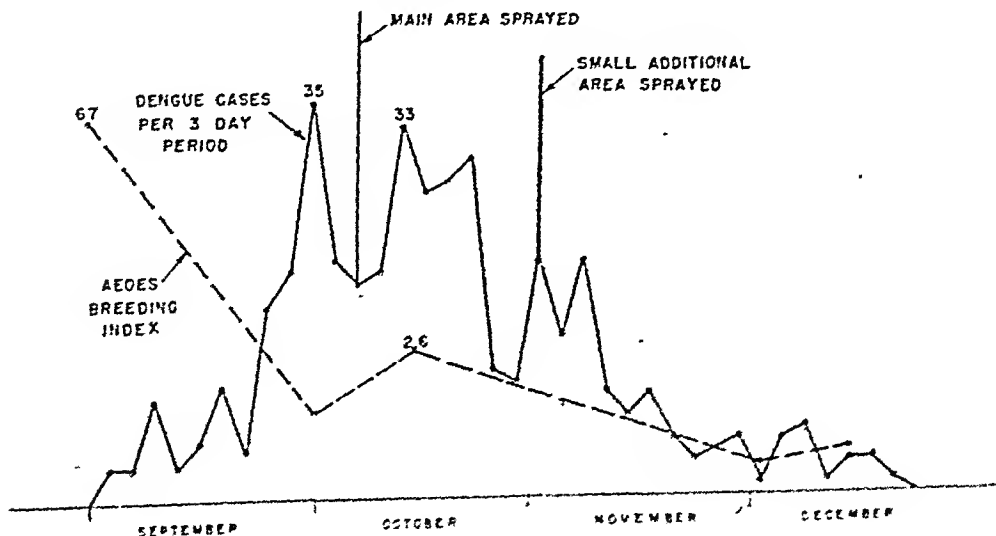
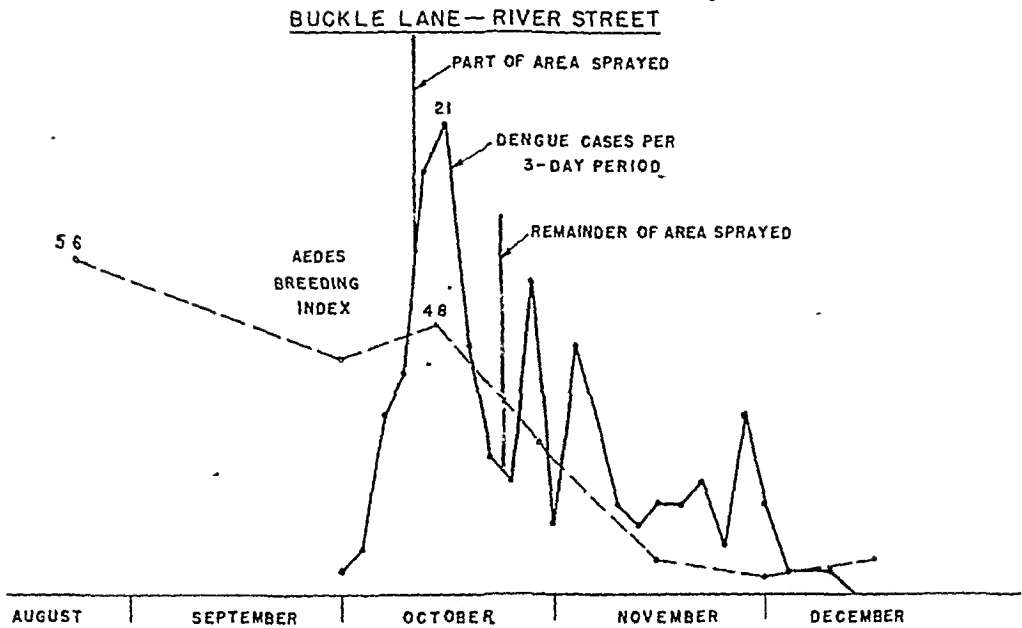
KAKA A K O

FIGURE 4



30 men, who collected and hauled away about 3,600 truck loads of tin cans, bottles, and other receptacles. Catch basins, storm drains, and utility company manholes were oiled by a motorcycle-mounted pressure tank spray unit. Roof gutters were removed, perforated or cleaned by a two man crew. Mosquito fish, *Gambusia affinis*, were stocked in places where they would propagate. Tree and rock holes proved very troublesome during rainy weather, and a small crew filled over 10,000 tree holes and 8,000 rock holes with cement. The tropical garden plants were among the most numerous breeding places in some areas and whole beds of lily and ape plants were removed by the owners, or, upon request, by the crews. All special crews were under direct supervision of headquarters.

DESIRED GOAL CITED

Briefly, the goal of the dengue epidemic control program in Honolulu was to reduce *Aedes* mosquito breeding throughout the city by every possible

means, and at the same time to follow up all individual and group dengue infections by spraying to kill adult mosquitoes.

Very early in the program the danger of spreading the disease from Oahu to the outside islands was realized. Most inter-island travel is by plane. Inspections were conducted around the airports, and the technique of disinsection of airplanes was reviewed and suggestions were made. Pyrethrum bombs were obtained from the army and loaned to the inter-island airlines for more effective spraying of planes. A printed notice was given to each inter-island passenger requesting that, after arrival on an outside island, any suspicious illness be reported to the local health authorities. A few cases of dengue contracted in Honolulu, which is on the Island of Oahu, did develop on three other islands, but prompt follow-up by spraying and other control measures instituted by the local health officers and military officials prevented the disease from gaining a foothold.

PUBLIC EDUCATION

Educational activities were vital to the successful operation of the program. Every available means of reaching the public was utilized. A special student survey was conducted through the Director of Health Education of the public schools. Over 25,000 separate inspections were made by students in their own homes where they found 30,000 water-holding containers and eliminated 5,000 which contained mosquito wrigglers. Radio spot announcements were presented and radio time was given by the President of the Board of Health in his weekly broadcast. Newspapers daily carried front-page accounts of the progress of the epidemic and methods of controlling its spread. Business houses throughout the city incorporated dengue publicity in their advertisements. Since some of the population come from foreign lands, publicity was issued in the Japanese, Chinese, Filipino, and Korean languages. A two minute sound movie trailer, prepared through the coöperation of the Army Signal Corps and the Navy photographic laboratory, was shown in 60 theaters in the Territory of Hawaii. With Chamber of Commerce funds, posters were exhibited in store windows, cards were placed in buses, and stuffers were placed in laundry bundles, and in bills of public utility companies. The Governor's "Work to Win" Committee arranged for publicity pictures, exhibits, and newspaper statements by local community leaders.

MOSQUITO BREEDING INDEXES

In order to guide the control program intelligently a comprehensive set of records was maintained from its start. The *Aedes* breeding index was used as a standard. This is the per cent of premises found with *Aedes* breeding places. Zone and city-wide indexes were calculated daily for the

first few weeks and for each semi-monthly period thereafter. In addition, indexes were computed for the various classifications of containers by type. Graphs were used to show the relative hazard in the various zones and in the different types of containers, so that control efforts could be placed properly or revised when necessary.

For future guidance it is important to know the threshold of sanitary importance; that is, the index below which extensive dengue transmission will not occur. In Honolulu, the city-wide *Aedes* breeding indexes were as follows, omitting the mid-month figures:

| 1943 | | 1944 | |
|------------------|----------|------------------|----------|
| | Per cent | | Per cent |
| August 31 | 5.7 | January 31 | 1.0 |
| September 30 ... | 1.7 | February 29 | 1.9 |
| October 31 | 1.1 | March 31 | 3.5 |
| November 30 ... | 0.9 | April 30 | 1.8 |
| December 31 ... | 1.2 | May 31 | 1.0 |
| | | June 30 | 1.1 |
| | | July 31 | 0.7 |
| | | August '31 | 0.8 |

Since the accuracy of these indexes is dependent on the experience of the inspectors, it is assumed that the actual breeding was higher than recorded at the beginning, with the accuracy gradually increasing. A spot-check made by experienced men early in September indicated that the city-wide index would be less than 10 per cent.⁶ Soper and Wilson have stated that with yellow fever the threshold of sanitary importance or "critical index," is about 5 per cent of premises breeding *aegypti*.⁸ It is believed that sometimes a lower index must be sought to prevent dengue, probably about 3 per cent where other conditions are favorable for transmission. Hanson even goes farther when he states "... the control of dengue requires a reduction of the *aegypti* incidence to a relative zero ..." based on the short period of immunity conferred by dengue.⁹

In an epidemic characterized by a number of succeeding foci of infection it is necessary to study the situation in

these areas separately. Mosquito breeding indexes up to at least a month previous to the beginning of any focus of infection must be considered because of the longevity of the adult insects. Figures 2, 3, and 4 show that the *Aedes* breeding indexes preceding these foci were probably not much above 5 per cent, even allowing for inaccuracy due to inexperienced inspectors.

POPULATION AND ENVIRONMENTAL FACTORS

The foci of infection all have at least one factor in common: high population density. The first three, Waikiki, Kakaako, and Buckle Lane-River Street have great numbers of closely-packed one and two story residences, many occupied by more than one family. In the latter two, particularly, screening of houses is almost entirely lacking. The short flight range of the vectors emphasizes the importance of the environmental situation. These factors, coupled with a moderate *Aedes* breeding index, provided suitable conditions for fast-spreading, localized outbreaks.

Conversely, there were other districts with one or more of these factors lacking, which, though seeded with dengue cases, never developed into areas of high incidence. Included were zones of extremely high population density and poor screening but with *Aedes* indexes from 2.7 per cent downward; also zones with moderate to high *Aedes* indexes, but with well spaced, adequately screened homes. Honolulu is a city with a tremendous range of rainfall—from about 23 inches annually along the beach and waterfront to almost 100 inches at the heads of finger-like valleys extending back between the mountain ridges. Fortunately for the dengue control work, the congested, poorly screened districts are not located in the moist, mosquito-ridden valleys.

Both *aegypti* and *albopictus* were un-

doubtedly implicated in the transmission of dengue, but, interestingly, it was observed that the infestation of *aegypti* was relatively greater in several of the epidemic foci than throughout the city as a whole. This is suggestive but not conclusive evidence that *aegypti* is a better vector of dengue because these areas afforded more suitable breeding places for *aegypti* than for *albopictus*. On the other hand, dengue spread to all eight members of an Hawaiian family residing in an isolated valley, which was *aegypti*-free, but infested with *albopictus*. At the start of the program, *albopictus* was about three times as abundant as *aegypti*, but due to the preference of *aegypti* for artificial containers such as tin cans and bottles, a differential reduction by the control activities was observed. During the rainy season, when heavy *albopictus* breeding was found in tree and rock holes and in plants, this forest loving species appeared with six times the frequency of the domesticated *aegypti*. By June, 1944, the ratio was 30 to 1. *Aegypti* in Honolulu thrives best in the warmer coastal sections of the city.

INFLUENCE OF RAINFALL

After the peak of the Honolulu epidemic was passed, there was no direct correlation between the curve of mosquito breeding indexes and the curve of the dengue cases, though mosquito breeding was shown to follow rainfall. The trend of the decreasing index was interrupted in early December when increased rainfall caused a slight rise which was later corrected. When the annual rainy season developed (though late) in February and March, the mosquito index more than tripled in one month. As rainfall again dropped to normal the mosquito breeding was immediately reduced. Neither of these increases in mosquito breeding produced a subsequent flare-up in the

epidemic. This was to be expected because the locating of the increased number of breeding places also meant the destruction of the larvae. Therefore only the "missed" breeders produced adult mosquitoes under any circumstance.

From the beginning of the epidemic up to June 30, a total of 1,498 dengue cases in civilians occurred, less than 0.7 per cent of the population of Honolulu. Relatively few cases were reported among military personnel. The peak of the epidemic in the third week in October was reached 14 weeks after the occurrence of the first recognized cases. From this peak 9 weeks elapsed until the curve began to level off. Since then there has been a slow decrease to an average of 5 cases per month. Meanwhile, new dengue cases have been imported intermittently from forward combat zones. It has not been possible to trace locally acquired dengue to "off shipping" cases, but the threat of a flare-up necessitates continued efforts to maintain a low *Aedes* mosquito population.

It was felt at the start that the first objective of the program should be the prevention of a crippling outbreak which might seriously hinder military operations in the Pacific theater of war. This objective has been accomplished. The next step is to eliminate dengue completely and this is proving to be a slow job. The most numerous vector, *Aedes albopictus* (Skuse), breeds throughout the dense forests up to 2,000 ft., so species eradication is not practicable.⁶ However, mosquito incidence has been reduced to a satisfactory level by application of the techniques and efforts described.

SUMMARY

Sanitary controls used in the epidemic of dengue fever in Honolulu were (1) city-wide premise-to-premise inspections on a 10 day cycle to reduce

general incidence of the vectors, *Aedes aegypti* (Linneas) and *Aedes albopictus* (Skuse), (2) comprehensive exterior-interior spraying to eliminate foci of dengue infection, and (3) public education to urge householders to prevent mosquito breeding on their premises.

Aedes breeding indexes were satisfactorily reduced by the inspection-correction-education efforts while simultaneous spray work destroyed adult mosquitoes in zones of high dengue incidence. The "critical index" or threshold of sanitary importance with dengue appeared to be lower than the safe point for yellow fever—5 per cent. Comprehensive spray treatment of the epidemic foci was followed by a sharp reduction in cases. A total of 1,498 civilian cases occurred from July, 1943, through June, 1944, or less than 0.7 per cent of the population.

ACKNOWLEDGMENT—The author wishes to acknowledge the suggestions made by Dr. C. L. Wilbar, Jr., President, Board of Health, Territory of Hawaii; Medical Director R. H. Onstott, U. S. Public Health Service District No. 10; P. A. Sanitarian (R) R. L. Usinger; and Assistant Sanitarians (R) D. D. Bonnet, B. Gross, and W. R. McCool. Also for the mosquito indexes prior to September 15, 1943, furnished by F. K. Lee, Supervisor, Rat and Mosquito Control, Honolulu Chamber of Commerce.

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American Journal of Public Health

and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 35

March, 1945

Number 3

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THE CHALLENGE OF MALARIA CONTROL

PROFESSOR T. M. Drown, pioneer of sanitary chemistry in the United States, was fond of pointing out that "the time of change is the time of danger." He was thinking of the menace to potable waters which developed at the time of fall rains and spring thaws. The axiom, however, holds over much wider areas of public health. When large numbers of people pass from one country to another and back again, there is change and there is danger. Millions of American soldiers and sailors are operating, or will operate, in Central Africa and in the South West Pacific which include the most fever-ridden areas on the surface of the globe. We already have warning signals of the results which we may expect. In the New England, Middle Atlantic, East North Central, and West North Central States there were reported during the winter months of January, February, and March, 1940, 101 cases of malaria. During the corresponding months of 1944, there were reported from these same states, 611 cases of malaria. The increase of 500 per cent is undoubtedly due to relapses among returned servicemen. It is a storm warning to which we should give heed.

This problem was forcibly presented at the meeting of the State and Territorial Health Officers last fall by Dr. L. L. Williams and his colleagues in the U. S. Public Health Service. M. D. Hollis described the program carried out by the organization called Malaria Control in War Areas for the protection of military establishments in 38 states, the District of Columbia, Puerto Rico, and Jamaica, covering 1,600 individual projects, at a cost of some \$10,000,000 a year. Dr. Williams stressed the need that will develop in the future for protecting the general population from the servicemen who will return to their home communities as carriers of even more virulent strains of plasmodia than those with which we have been familiar in the United States. He pointed out that "having never restricted civilian carriers (of malaria), it is neither humanitarian nor possible to restrict the movements of restless military carriers and that, therefore, we must concentrate our efforts against the vector mosquito." As Surgeon General Parran pointed out at our A.P.H.A. meeting in 1943, the answer is to be found, not in quarantine, but in rendering the local environment non-infectible.

It would be needlessly alarmist to anticipate serious difficulty from the introduction of new and sinister "tropical diseases." It is true that filariasis was introduced at Charleston, S. C., but only by a large group of infected slaves, and it has now probably died out. Since the parasite does not appear in the blood for 18 months, and since it is frequently fatal to the insect vector, the task of this parasite is an arduous one. It is good old-fashioned malaria, not any exotic malady, that we must expect. And the chief source of danger will not be the known clinical case developing during service, since such a case will have had long and intensive treatment. The major menace is the man who has been kept well under repressive treatment, but who harbors the parasite and may, when treatment ceases, suffer a relapse. Such men may run into tens or hundreds of thousands by the time demobilization is completed.

The past history of malaria control in the United States has been a creditable one. Malaria in the days of the first settlements was a deadly scourge clear up to the Canadian border. In the North it has disappeared as a result of agricultural drainage and better housing. In the South, in spite of the longer breeding season of the mosquito, much progress has been made. The malaria control work of federal, state, and local health departments in thickly settled areas, the thousands of miles of ditches dug by relief workers during the depression, the campaign for elimination of anopheline breeding places near military camps and war industries, have accomplished notable results. A survey carried out by the Malaria Control in War Areas staff (using the thick film method) showed 0.5 per cent infection instead of 6.0 per cent found ten years ago. Since the cyclic rise in malaria rates of 1934, there has been no measurable peak in the civilian incidence of this disease.

Yet the job is not completed. Dr. O. G. Gilliam reports that the U. S. Public Health Service, after an intensive study, has found portions of 68 counties in the southern states which still constitute major danger spots. The seven year cycle of peak malaria prevalence which prevailed prior to 1934 shows how incidence may build up if constant control is not maintained. We have had experience of malaria epidemics in Camden, N. J., in Aurora, Ohio, in Paw Paw, Mich., and in a narrow belt of country extending through 5 states from the upper Mississippi. The infection from Army and Navy carriers will inevitably upset the balance of the situation and cause serious trouble in many southern, and some northern communities—unless we bestir ourselves.

It is for this reason that the U. S. Public Health Service is urging a comprehensive, nationally planned, program of malaria control based on three procedures:

1. Intensive control of the insect vector in existing foci of malaria. This should include not only the control of present larval breeding places and of new breeding places created by power and flood control impoundment; but also the protection of dwellings against adult mosquitoes by the use of the new insecticides now available.
2. The organization of mobile teams to institute control measures in case of outbreaks of malaria in marginal or northern states.
3. Education of physicians, through refresher courses and in other ways, in the prompt recognition of a disease with which many of those in civilian practice are today not familiar.

Dr. Williams estimates that an adequate program might cost between 10 and 15 million dollars a year for at least five years and a million dollars a year thereafter to maintain inspection and educational work. Such a program would be well worth the cost.

THE WIDE SIGNIFICANCE OF NUTRITIONAL DEFICIENCY

PUBLIC health workers are watching with keen interest the new evidence which is presented, year by year and month by month, in regard to the influence of diet upon health. Not all this evidence points in one direction. In studies with human beings on the effect of supplementing ordinary diets—some with minor, other with more pronounced deficiencies—results have not always been uniform. There are, however, many pitfalls in such investigations which have recently been reviewed by the Committee on Diagnosis and Pathology of Nutritional Deficiencies of the N.R.C.¹

On the whole, the mass of positive findings, which indicate the major importance of this problem, is impressive. An appraisal of the evidence has recently appeared in *Bulletin No. 109* of the National Research Council.² More recently, a symposium on the subject at the Twenty-Second Annual Conference of the Milbank Memorial Fund has brought out the marked progress in this field and the great importance which may be attached to it.³

In the first of six articles in this symposium, F. F. Tisdall emphasizes the fact that not markedly but slightly or moderately deficient diets—not classical and florid but less intense, long standing deficiency states—constitute the public health problem of nutrition in this country. He cites examples of demonstrations that these conditions interfere with attainment of full physique, performance, and health, and that improvement in diet and nutrition brings corresponding betterment in these respects.

The beneficial influence of satisfactory nutrition on growth begins in the womb. The causes of many complications during pregnancy and of difficult labor have long been obscure. As for the condition of the infant, it has been sometimes maintained that under conditions of nutritional adversity the expectant mother suffers all the untoward effects while the fetus is protected. Yet no less than ten studies bearing on the relation of nutrition to pregnancy have yielded results indicating the benefits for both mother and child of improved nutrition. Reporting on one of the latest and completest of such studies, Bertha S. Burke has submitted evidence that puts the matter beyond peradventure. A relationship was found between the expectant mother's dietary habits and the course of her pregnancy and parturition, particularly the incidence of toxemia and difficult types of delivery. Also the dietary practice of the expectant mother during pregnancy was directly related to the condition of the infant at birth and within the first two weeks of life. Thus, not only the expectant mother's course in gestation and labor, but also the health of the child is dependent on nutrition during pregnancy. This principle is ready for application in prenatal programs, both for improving the course of pregnancy and labor and for further lowering infant morbidity and mortality rates.

In another article in the symposium Josef Warkany records that with experimental animals he has repeatedly induced by faulty diets developmental defects of a type often attributed to genetic causes. Such abnormalities as syndactylism, brachydactylism, and cleft palate occurred when the maternal diet was deficient in riboflavin; changes appeared in the ribs when vitamin D was inadequate. Even more recently, developmental defects have been reported as appearing in the eyes of the young when the maternal diet is low in vitamin A.⁴ Thus, certain ana-

tomical abnormalities developed *in utero* are directly related to maternal malnutrition.

As life goes on, the status of nutrition continues to exert a vital influence on growth and development and efficiency. Learning ability is one of the qualities directly affected by nutritional status. Nutrition, in its demonstrated or suspected effects on capacity for heavy work, precision, and dexterity, and in its relation to fatigue, comes into direct relation with industry. In the Milbank symposium, W. H. Forbes reaches the conclusion that, though definite proof on most points is lacking, light or moderate or even hard physical work adds primarily to the caloric requirements and raises little, if at all, the needs for protein and vitamins A, C, D, and K. The need for the B complex may be increased somewhat but probably less than in proportion to the extra calories until the work becomes hard or exhausting, when it almost certainly rises considerably.

In some industries a major concern arises from the hazard of exposure to occupational poisons. To reduce the risk, our basic measures designed to lessen exposure to toxic material may be reënforced in certain cases by increasing the resistance of the workers through better nutrition. W. E. Crutchfield, Jr., reviews present knowledge concerning the effects of specific types of poisonings upon human nutrition and of improved nutrition upon resistance to these toxicities.

It is gratifying that the Government has been mindful of its opportunities to help in the solution of the problems bearing upon nutrition in industry. Explaining the vast network of interrelationships involved, Robert S. Goodhart reviews the organization and accomplishments of the Government's industrial feeding program and indicates the major problems to be solved. Under federal encouragement and advice, substantial progress has been made in this difficult and intricate task.

Finally, nutrition has its applications in the important area of geriatrics. The influence of dietary deficiency upon the skin and hair of animals is well known; and recent observations in Newfoundland,⁵ where dietary deficiency is serious and widespread, revealed women in their twenties with the harsh and wrinkled skins of ancient crones. It would be surprising if such changes in the skin were not reflected in more vital organs.

All this is of importance to the health officer in connection with his programs of maternal and child welfare, of tuberculosis control and industrial hygiene. It also emphasizes the need for a broad attack on the fundamental problem of nutrition as a national issue. Such an attack should be made along at least three lines. We need to continue and supplement national and state regulations providing for the preservation or addition of essential food elements in certain staple foods. The A.P.H.A. has, for example, adopted an official resolution calling for the continuation of the enrichment of bread after the war and the *Journal of the American Medical Association* endorsed this policy in a recent issue. In the second place, we must continue and expand our program of popular health instruction along nutritional lines. Third, we must work for the development of facilities by which the people can actually apply the knowledge they acquire, particularly through the development of adequately supervised industrial cafeterias. A beginning has been made; but we are, on the whole, far behind England and the Soviet Union in this respect.

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THE EXPANDING SCOPE OF PUBLIC HEALTH LABORATORIES

THE Health Department Laboratory of New York City reported in 1900 (eight years after it was established as the first city diagnostic laboratory in the United States) 25,057 examinations for recognition of diphtheria cases and carriers, 5,363 tests for tuberculosis, 2,097 Widal tests, and 27 histological specimens examined. Forty years later, in 1940, the New York City Laboratory reported nearly one million examinations—631,499 for syphilis, 92,193 for diphtheria, 80,134 for tuberculosis, 59,891 for gonorrhea, 16,457 spinal fluid tests, 13,821 stool examinations, 6,452 tests for pneumonia, with smaller numbers for melitensis, tularemia, and other diseases of which we never dreamed in 1900.

Each year sees new examinations added to the list of public health laboratory procedures, such as the typing of pneumococci, streptococci, and typhoid bacilli, the classification of Salmonellas and the dark-field examination for syphilis. Each year witnesses growth and development of laboratory methods for the control of water and milk supplies and shellfish. Each year sees our better city and state laboratories making fundamental and important research contributions toward the improvement of techniques and, sometimes, adding to our basic knowledge of epidemiology.

In a few instances we have witnessed even more radical expansion—far beyond the basic concepts of Vaughan at Ann Arbor and Park in New York. It has always been the function of the public health laboratory to aid the physician, as well as the health officer, in the diagnosis and isolation of the germ diseases. For other types of laboratory service the physician has relied on his own assistants or on a hospital laboratory for expert chemical and pathological advice. This is obviously right and proper, where such facilities exist. In certain instances, however, as in Fulton and Montgomery Counties, New York, the public authorities have been highly successful in providing a much needed wider service.

In Montgomery County, for example, a County Laboratory, supported entirely by state and county funds provides—as a free public service—for a population of 70,000, not only the usual diagnostic and sanitary services but also all the medical tests which in most other communities are the task of hospital or private pathologic laboratories. This includes all autopsies, surgical pathology, hematology, serology, blood grouping, urinalysis, chemistry of blood and other body fluids, bacteriology, bacterial agglutination tests, preparation of bacterial vaccines, gastric analysis, basal metabolism, examination of feces and exudates. Electrocardiograms are taken by laboratory technicians but are interpreted by attending physicians.

Branch laboratories are maintained at the three hospitals of the county and are available at all hours, day and night, on the call of physicians. Autopsies are

performed not only in the hospitals but in the homes of private patients, in undertakers' establishments, or any other convenient place.

The director and staff of the laboratory are selected by County Civil Service. The director is a diplomate of the American Board of Pathology in Pathologic Anatomy and Clinical Pathology.

The cost of the service is 50 cents per capita per annum, a figure for which comparative costs on a fee-for-service basis are not, so far as we are aware, available.

The chief advantages of the plan, as reported by the Director are:

1. The centralization of all types of medical and public health laboratory work in one organization, thus eliminating a good deal of duplication and making better use of plant, apparatus, and personnel.

2. As a consequence of this centralization, it is possible to give a small community adequate laboratory service when the amount of work would not be sufficient to support several different hospital, public health, and private laboratories.

3. A great deal of red tape, such as sending out bills and deciding who shall pay for laboratory work of indigents, as well as the humiliation of indigents by investigations, is avoided.

There may be other areas than Fulton and Montgomery Counties where a program of this kind might prove desirable and acceptable.

THE 74TH ANNUAL MEETING

POSTPONED

Following is the action taken by the Executive Board on January 26, 1945, with regard to the 74th Annual Meeting:

The President of the United States, the Director of War Mobilization and Reconversion, and the Office of Defense Transportation have declared, in effect, that an emergency exists with regard to the nation's transportation and hotel facilities, and that the cessation of group meetings and conventions involving more than fifty persons will partially relieve it. Accordingly, by authority of the actions taken by the Governing Council on October 13, 1943, and October 4, 1944, the Executive Board of the American Public Health Association VOTES to postpone the 74th Annual Meeting of the Association scheduled to be held in Chicago, Illinois, the week of September 17, 1945. The question of an Annual Meeting, however, shall be reopened as soon as conditions permit.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

All books reviewed in these columns may be purchased through the Book Service.

Health Practice Indices—Compiled from the Evaluation Schedules; Prepared by the Subcommittee on Manual of Practice and Appraisal of Local Health Work for the Committee on Administrative Practice of the A.P.H.A. New York: A.P.H.A., 1944. 116 pp. Free on request.

Graphs showing results obtained rather than work performed in the field of public health is the objective of the recent publication, *Public Health Indices* of the Committee on Administrative Practice. Each item considered is one that is accepted as indicative of health conditions in any city. The graphs were prepared from the reports submitted by the cities entered in the 1943 National Health Honor Roll.

It is disconcerting, to say the least, to see the great variation of attainment. This is especially true when it is considered that the records were submitted for rating on an Honor Roll and might therefore reasonably be expected to show the attainment of cities above the average in active health services and having health minded citizens. There is evidence of greater achievement and more uniform attainment by the cities in the field of sanitation, including adequate sewage disposal and approved water supplies, than in other fields. Communicable disease control—even of the diseases for which we have specific means of prevention—tuberculosis control, maternal and infant care, in fact, all the fields of activity that are considered the special function and duty of health departments, show great variation of attainment.

It has been noted that a few health

officers have used the graphs as a basis for their annual reports. Even though one's own city is not shown, the record may be inserted so he may know how his city compares with the cities that were entered. Lantern slides of the graphs with a particular city indicated offer an unusual opportunity to publicize the work that is being done or should be done, as well as satisfying the sporting instinct in any audience, and their desire to see their city make a creditable showing as compared to other cities, that is, providing it has.

Future issues of *Health Practice Indices* can be of still greater value, providing the basic questionnaire remains brief and if all health officers would consider it a duty they owe their Committee on Administrative Practice to supply the information requested.

I. F. THOMPSON

Symposium on Wartime Advances in Medicine—Proceedings of the American Philosophical Society. Philadelphia: American Philosophical Society, 1944. 219 pp. Price, \$1.00.

Those who seek in compact form an account of important medical advances during wartime will do well to read this symposium presented before the American Philosophical Society in April, 1944. Competent authors cover the subjects of water requirements of castaways, blood derivatives and blood substitutes, present status of penicillin in treatment, recent advances in the treatment of wounds, the rôle of immunization in wartime, human problems in military aviation, environmental protection, neuropsychiatry, and trends

in the study of the control of infectious diseases. The Penrose Memorial lecture on the international labor organization completes an excellent symposium. REGINALD M. ATWATER

Mosquito Control — Practical Methods for Abatement of Disease Vectors and Pests—*By William B. Herms, Sc.D., and Harold F. Gray, Dr.P.H. (2nd ed. rev. and enlarged.) New York: Commonwealth Fund. London: Humphrey Milford, Oxford University Press, 1944. 419 pp., illus. Price, \$3.50.*

The first edition, reviewed in the July, 1941, issue of this *Journal*, has proved to be a comprehensive and practical handbook for public health and mosquito abatement officials and others engaged in mosquito control work. The present revision and enlargement was necessitated by "the rapid development of new techniques of mosquito control in the past three years." The authors say: "we have eliminated obsolete material and obvious errors, have modified some opinions, and have added whatever new material appeared to us to be significant." The needs of our military and occupational forces and also the requirements of civilian workers have been considered.

The first five chapters—about 100 pages—deal mainly with the principles of mosquito abatement and the factors and methods to be considered in organizing and establishing abatement programs. The remainder of the book is devoted to the various and detailed methods of finding mosquito breeding places, identification of mosquitoes, and the numerous control methods that may be applicable in different situations. It is evident that, with a background of long experience and study of available literature, the authors have been careful in including and evaluating all known methods of mosquito abatement and control. Also their descriptions

and illustrations are clear and the suggestions given are definite and practical.

Subjects on which discussion has been added or amplified include: results of effective malaria control measures; collection of mosquito larvae and eggs; ditching with explosives; ditch lining; newer larvacides (bottom oils, DDT and others); methods of applying larvacides; newer spray materials to protect against adult mosquitoes; military mosquito control; species eradication; and *Aedes aegypti* control.

About 25 illustrations have been added in the text, including a series on the details of automatic siphons for flushing small streams. The appendices now include classified lists of mosquito vectors of malaria and of other diseases throughout the world according to species, region and breeding place, detailed classifications of malaria vectors and methods for their control, and keys, diagrams, and other aids in mosquito identification.

Comprehensive bibliographies placed at the ends of chapters together with the specific and practical text, make this an essential book for expert or novice in mosquito control work.

ROY J. MORTON

Child Development. Physical and Psychological Growth Through the School Years—*By Marian E. Brockenridge and E. Lee Vincent. Philadelphia: Saunders, 1943. 592 pp. Price, \$3.25.*

In their book on child development the authors have gathered together a large body of information concerning both the physical and mental development of the child. It is a book of distinct value to anyone seeking to understand the processes at work during the formative years of childhood. In their preface they state that the book "is designed for professional students in psychology, teacher training, home economics, medicine, nursing, and social

work as well as for parents," and they have approached their problem primarily in a textbook form with "Questions for Class Study" following each chapter.

It is perhaps the heterogeneity of the audience which they have chosen to address and this pedagogic approach that makes the book, though valuable in many ways, disappointing in others. The factual data are all presented with extreme conscientiousness but with curious mixtures of scientific and non-scientific phraseology, at one moment the advanced student seems to be addressed, at another the layman.

Since the authors are writing with all types of readers in mind, the material they present gives the impression of a monumental assembling of information without the selection that would be exercised in addressing a clearly defined group. This quality is less evident in the second half of the book, in which the chapters on the development of memory and growth of language as well as those on social and personality development are excellent. Here one recognizes the wise and sympathetic point of view of students of the child himself.

The authors are also to be complimented on the completeness of their bibliography, which in itself makes the book a source to which one would frequently turn for guidance in further study of the basic material that their text contains.

MARJORIE F. MURRAY

By Order of the Surgeon General
—By Samuel B. Grubbs, M.D. (*Privately printed*—D. D. Grubbs, Pleasant Woods Farms, Carmel, Ind.), 1943. 332 pp. Free to Health Departments and Associations.

This story of the professional life of the late Dr. Grubbs is of interest not only to the career officers of the U. S. Public Health Service, in which the

author served for 37 years, but to others who should know what it is that underlies the esprit de corps of this remarkable organization. The style is readable throughout and at times really thrilling. REGINALD M. ATWATER

Health Instruction Yearbook, 1944—By Oliver E. Byrd. Stanford, Calif.: Stanford University Press, 1944. 354 pp. Price, \$3.00.

Here it is! A book many public health workers have been looking for; a book many more will want when they know its contents; a book every public health officer, executive secretary, supervisor of public health nurses, field consultant, health education coordinator, librarian and college instructor should add to his or her group of essential personal desk references. Those in the special fields of nutrition, physical education, mental hygiene, dental health, etc., will find a summary of materials in their own special field, and have easily available facts for the wider area of public health.

This 1944 *Yearbook* brings together in ready reference and cross-index form, the current experience, research, and opinion relative to all phases of public health as revealed throughout the current year through articles from professional magazines, government reports, and research bulletins. The chapters are organized into both wide fields of public health as a sociological problem and into specific personal health areas. Chapters dealing with the broad sociological aspects are under such titles as: Health as a Social Accomplishment, Heredity and Eugenics, Health and Physical Environment, Community Health Service. In the same table of contents will be found chapters devoted to such personal health needs as nutrition, fatigue and rest, infection and immunity, etc.

At the beginning of each chapter, the writer makes introductory statements

which provide orientation to the area of health under presentation. Articles, reports, and bulletins are reviewed, excerpted, or quoted. Tables of facts, dates, and specific numbers are used freely. A bibliography of each publication used is easily found by corresponding numbers in the back of the book. A cross-index on a word basis makes for integration of materials.

The one unfortunate note about this book is its title, which with the foreword, seems to stamp it as "another school textbook." It certainly should find its way into schools, colleges and universities where the broad sociological aspect of health is needed in classroom instruction. Its organization and content make it also an invaluable reference for leaders and workers in public health, whose major function is to keep themselves informed of current research, opinion and experience of others, and who in turn, must help community groups, political and governmental leaders to understand social needs and trends.

REBA F. HARRIS

Proceedings and Papers of the Thirteenth Annual Conference of the California Mosquito Control Association—*Edited by Harold Farnsworth Gray. Berkeley: State Bureau of Sanitary Engineering, 1944. 135 pp. Price, \$1.50.*

This conference, held at the University of California at Berkeley, in February, 1944, consisted of five sessions. The registration lists showed an attendance of approximately 135, composed largely of representatives of the Army, Navy, U. S. Public Health Service, University of California, California state and local health departments, and seventeen mosquito abatement districts. The well arranged program gave emphasis to war problems of mosquito abatement in this country and the various theaters of military operations elsewhere. The program consisted largely

of symposia or lengthy single papers on important subjects. The especially prepared papers were followed by quite full discussion from the floor which was recorded, edited, and included with the papers in the proceedings.

The major subjects included were: symposium on diseases transmitted by mosquitoes in the Pacific Area; danger to civilian populations on the Pacific Coast from mosquito-transmitted infections in returning military personnel; U. S. Public Health Service War Emergency Program for Control of *Aedes aegypti* mosquitoes; a review of the more important articles on mosquito control appearing in the literature in 1942 and 1943; the California program of malaria control in war areas; symposium on mosquito control problems in South Pacific area; symposium on control methods; use of ditch lining, underground drains and sanitary fills for malaria and mosquito control; and symposium on operating problems.

This publication has the usual advantages and disadvantages of a chronological record of conferences of this sort. It includes much original information freely presented from actual experience, but is necessarily diffuse and overlaps a great deal with material already available elsewhere. The proceedings are well edited and include many useful references to the literature and a record of names associated with recent developments. Being mimeographed, the proceedings could not include the valuable illustrative materials—charts, slides, and motion pictures—which were used with and must have added greatly to the value of the discussions.

ROY J. MORTON

Virus Diseases in Man, Animal and Plant—*By Gustav Seifert. New York: Philosophical Library, 1944. 332 pp. Price, \$5.00.*

This book, in spite of its interesting title, turns out to be a disappointment. Neither author nor translator is identified in the book so that at the outset one has a feeling of doubt as to whether what he is about to read is authoritative.

The content is largely a partial and uncritical summary of current literature, and contains nothing not readily available from a number of other sources. The translator, evidently not familiar with medical terminology, does not improve the text when such phrases are used as "sound virus carriers," "breeding vira in chicken embryo tissue," and "gall seems to harm it little." The numerous errors in the names of authors quoted does not indicate that the bibliography could be relied upon.

On the whole, the book is poorly gotten up, and one is at a loss to know why it should receive the consideration that a translation usually connotes.

W. LLOYD AYCOCK

To Live in Health—By R. Will Burnett. New York: Silver Burdett, 1943. 332 pp. Price, \$1.96 (School Edition).

Individuals concerned with secondary school health education will find *To Live in Health* a helpful text or reference book for students. Written in a stimulating and interesting style, this book presents an overall picture of the nation's health and then deals with methods of building and maintaining health and of combating disease.

The number of topics covered in this text is extensive, and includes most of those considered important in secondary school health education. Following introductory chapters on the total health problem and the rôle of the individual in combating national problems and of guarding his own health, several chapters are devoted to the body's defenses against disease. Separate chapters are devoted to communicable diseases, non-communicable diseases, mental health,

nutrition, and the avoidance and treatment of injuries. Each chapter ends with a self-testing multiple choice exercise.

A few topics important to secondary school students receive such brief presentations that students will need to supplement the material contained in *To Live in Health* with outside reading. This is, for example, true of first aid, home care of the sick, and care of children.

The book has an attractive appearance. The chapter headings are distinctive and pleasing to the eye. A number of excellent charts, diagrams, and other illustrations are used, but more could have been used to good advantage. This book in the opinion of the reviewer can be recommended for secondary school libraries and for use with high school health education classes.

CHARLES C. WILSON

Health Education for All Ages—Compiled by Lili Heimers and edited by Margaret G. Cook. New Jersey State Teachers College, Upper Montclair, N. J. Vol. 2, 36 pp. mimeographed, 1944. Price, \$.75.

This list of teaching aids in health education directs the teacher to many excellent sources of materials. Under the headings of general information, physiology, alcohol and health, personal health, nutrition, mental hygiene, heredity and sex education, diseases and their prevention, nursing, and public welfare, specific pamphlets, charts, posters, films, etc., are listed. With most of these titles is given a brief description of the subject matter covered and some of the write-ups include suggestions for the possible use of the material. This procedure, of course, makes the list much more meaningful. It is unfortunate that such suggestions were not included for all the titles and that no system of evaluation was attempted for all the materials listed. The

value of this list for the teacher and for other workers in the field of health education might be greatly increased if the grade level were determined and indicated for each teaching aid given in the bibliography.

LUCY S. MORGAN

Maternal Overprotection — By David M. Levy. New York: Columbia University Press, 1943. 417 pp. Price, \$4.50.

"Like clinical medicine," Dr. Levy states, "child guidance is primarily an art and not a science" . . . and . . . "like medicine, an art it must always remain." Dr. Levy's recent book, however, is a significant landmark in the development of child guidance as a scientific discipline as well as an increasingly important clinical art. *Maternal Overprotection* reports fully on an important kind of investigation which is necessary if the clinical art is to be practised more effectively, and strengthened by data and insights gained and checked by sound scientific procedures.

Since maternal overprotection is common in many cultures, particularly our own, its rôle in influencing the parent-child relationships merits the serious and careful study which Dr. Levy reports. Since overprotection often appears in an exaggerated form, its operation and effects can be seen and studied fairly easily. Dr. Levy therefore chose for intensive study case studies in which the factor of maternal overprotection appeared in magnified and apparently isolated form. Once the pattern has been established, "maternal overprotection" can be recognized more easily in cases or instances in which it is less obvious or clear-cut.

The criteria for diagnosing maternal overprotection which Dr. Levy has given are not only extremely valuable and suggestive but will be recognized as valid by all who have had extensive clinical experience. The criteria will

also help the clinician distinguish "pure" overprotection from so-called "guilt overprotection," "mixed overprotection," "mild overprotection," and non-maternal forms.

Dr. Levy's discussion of the diagnosis and treatment of such cases—as well as the criteria for diagnosis—merits the careful attention of all those who are professionally engaged in child guidance in the clinic, hospital, welfare agency, or school. Parents, and parents' study groups would also be well advised to consider and discuss the implications of this study for sound child rearing. Social scientists will find the book's methodology, as well as its findings, important and helpful.

MARY S. FISHER

Baby Care During Expectancy and the First Year—A Helpful Guide for Mothers on the Care of Infants—By May E. Law. (2nd ed. rev.) Philadelphia: Lippincott, 1943. 13 Booklets. Price, \$1.25.

The text of "Baby Care" is contained in thirteen separate leaflets of from 15 to 30 pages each and is attractively boxed for safe keeping. The first leaflet advises on the baby's care before he is born, and the other twelve cover his needs at monthly intervals. Each leaflet starts with a foreword briefly outlining the subjects considered in the text which presumably serves as a Table of Content. Next "Golden Rules" are listed. These give sound advice but too many start with the prohibitive "don't" and tend toward a negative emphasis rather than a positive angle of good care.

Each subject which is presented is headed by bold faced type providing for easy reference throughout the text. The last page of each leaflet gives a "Daily Schedule" which commendably includes the mother and a "Weight Chart" providing for a weekly record of the baby's weight beside the average

weight, even to the ounces, for each age period. There is a space to record the weekly gain with a catalog of the average gain for each period. Such detail of weight recording might easily cause the mother much worry if her child did not progress according to the schedule as outlined.

Each leaflet is generously illustrated. Some of the pictures represent good teaching, but others portray the "don'ts" of baby care. For example one caption reads "Never try to remove an object from the ear" and the picture illustrates a mother endeavoring to accomplish this feat.

The advice is given as a statement of

fact without many explanations of the reasons for the procedure. Much emphasis is placed on regularity by the clock and on the detail of everyday care without allowance for the infant's individuality or the mother's imagination or household routine. Dr. Law's concept of child care compares with that in vogue five or ten years ago. Although there are many attractive features in this series of leaflets, and mothers could gain useful knowledge from reading them, there are other publications available at little or no expense which conform to the newer concepts of child care.

HELEN A. BIGELOW

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Salaams to These—Human volunteers (heroes would be a better word) inoculated with a pool of filtered throat washings demonstrated that bacteria-free filtrates, presumably containing a virus, can induce primary atypical pneumonia.

ANON. Transmission of Primary Atypical Pneumonia to Human Volunteers. *J.A.M.A.* 127, 3:146 (Jan. 20), 1945.

Call to Action—If the magnitude of the rheumatic fever problem is to be made known to the community, if there is to be intelligent direction, if there is to be a sustained effort to control the disease, then the medical society must play a part in stimulating community action, say these writers.

ARMSTRONG, D. B., and WHEATLEY, G. M. Community Organization for the Control of Rheumatic Fever. *New York State J. Med.* 45, 2:169 (Jan. 15), 1945.

Against Measles and Other Infections—Control of infectious diseases by passive immunization with blood globu-

lins may be the greatest function of future civilian blood banks, concludes this pioneer in applied hematology.

COHN, E. J. Blood Proteins and Their Therapeutic Value. *Science.* 101, 2612:51 (Jan. 19), 1945.

Number One on Your List—Your attention is called to this not-to-be-missed symposium; we paraphrase the radio gag of dubious ancestry and apply it to them. "These, you must see!"

CURRAN, J. A. Provision of Better Medical Care (and eight related papers). *Milbank Quart.* 23, 1:7 (Jan.), 1945.

After Forty, What? — Annual physical examinations have been carried out for 15 years on a group of about 3,000 "average" adults over 40. This long-time systematic observation has produced profitable results in the early recognition of diseases among "healthy" people.

FELLOWS, H. H. Scope of an Industrial Medical Service. *New York State J. Med.* 45, 1:57 (Jan. 1), 1945.

Department of Hard-Dying Ideas—Now a British researcher comes forward with evidence that vaccines and other cold "preventives" do not prevent. He writes that he is "unaware of any large scale controlled test that has given any convincing proof of prevention of colds, yet a large proportion of the medical fraternity has the firmest faith in this prophylaxis." (Over 90 per cent use vaccines, he writes.)

HAGUE, D. V. *Prophylaxis of the Common Cold*. M. Officer. 72, 25:205 (Dec. 23), 1944.

Item to Tuck Away in Your Memory—This analysis of goat's milk indicates that it is not sufficiently different from cow's milk, in the matter of vitamins, for us to get excited over its superior nutritional qualities. There was a wide variation in the various vitamin determinations among the samples, but the averages were higher in some—and lower in other—vitamin values than for cow's milk.

HOLMES, A. D., *et al.* *The Vitamin Content of Commercial Winter Goat's Milk*. New England J. Med. 232, 3:72 (Jan. 18), 1945.

Quote—Almost 4,000,000 men have been rejected for military service. Of the total number of rejections, 30 per cent were for reasons of mental deficiency and mental diseases. **Unquote.** That is a statistic which must be driven irremovably into the consciousness of every health administrator even if it requires a sledge hammer to do it.

KOPETZKY, S. J. *Validity of Psychiatric Criteria for Rejection for Service with the Armed Forces*. War Med. 6, 6:357 (Dec.), 1944.

Anent TB Preventoria—Perhaps this nubbin is enough to guide you in your decision to read or pass up this paper: "There was no evidence that rest in bed influenced in any way the course of the primary complex or reduced the incidence of complications

and no evidence that lack of rest in bed was in any way detrimental."

LEVINE, M. I. *Primary Tuberculosis*. Am. J. Dis. Child. 68, 6:385 (Dec.), 1944.

Silver-Lining Department—Gains from wartime advances in our knowledge of malaria control outweigh the adverse effects of possible spread of the disease and its vectors; so concludes this writer, who ought to know.

McCoy, O. R. *Malaria and the War*. Science. 100, 2607:535 (Dec. 15), 1944.

From a Plant Physiologist—So well said that it deserves direct quotation, we spread before you this treat. "In some cities there are even special 'vitamin shops' or 'bars.' The vitamin fad has become an epidemic. While most people have only a vague idea what vitamins are, excepting that they are connected with the alphabet, still this does not prevent them from becoming enthusiasts, even faddists. Evidently it keeps them happy."

MURNEEK, A. E. *Vitamins in Our Food*. Science. 100, 2608:557 (Dec. 22), 1944.

Vision—Wisconsin proposes the establishment of a competent state district health service to offer opportunities to returning service men trained in public hygiene.

NEUFERT, C. N. *Now Is the Time to Start Our Post-War Health Program*. Wisconsin Quart. Bull. 7, 12:3 (Oct.-Dec.), 1944.

More about Polio—In this down-to-earth discussion of the epidemiology of polio, most of the theories about the mechanism of its spread are presented and analyzed. At the end, the reasons for assuming that usually the infection is spread through person-to-person contact are given. Control measures are discussed with an equal lack of partisanship.

PERKINS, J. E. *The Epidemiology of Poliomyelitis*. New York State J. Med. 45, 2:159 (Jan. 15), 1945.

Morbid Categories—This study furnishes a basis for the concept that streptococcal infections change their clinical pattern with age. There are distinct childhood and adult types of streptococcosis.

POWERS, G. F., and BOISVERT, P. L. Age as a Factor in Streptococcosis. *J. Pediat.* 25, 6:481 (Dec.), 1944.

Stet—In the absence of organic disease, a person who consumes adequate amounts of the protective foods does not need additional vitamins. Vague symptoms are not likely to be due to vitamin deficiencies. Prolonged vitamin therapy in the absence of disease is useless.

RUFFIN, J. M. The Use and Abuse of Vitamins in the Treatment of Mild or Early Deficiency States. *Nutrition Rev.* 2, 12:353 (Dec.), 1944.

In a Very General Way—Another paper supporting the thesis that children may be immunized against whooping cough with vaccine. Pertussis toxin and antitoxin are not reliable agents for the prevention and treatment of the disease, this researcher reports. Skin tests are not reliable indices of immunity.

SILVERTHORNE, N. Whooping Cough. *J. Pediat.* 25, 6:584 (Dec.), 1944.

Heat from Pipes—Health administrators interested in public housing will wish to read this exhortation to their British brethren to adopt community heating. It seems the Russians began this is a big way and the reporter is greatly impressed with the results.

SMITH, D. V. H. District Heating and the Smokeless City. *J. Roy. San. Inst.* 65, 1:28 (Jan.), 1945.

Brighter Future—Army doctors who know about modern venereal disease treatment will return to civil practice. Ten million soldiers who know about venereal disease dangers will dilute popular ignorance. Experience with mass groups will add to our preventive armamentarium. Add these factors and you have cause for optimism, say these writers.

STERNBERG, T. H., and LARIMORE, G. W. Army Contributions to Post War Venereal Disease Control Planning. *J.A.M.A.* 127, 4:209 (Jan. 27), 1945.

Tuberculosis—A Social Index—A little late in the day—Volume II having been completed—we greet this new quarterly journal of the (Br.) Central Council for Health Education published for the edification of teachers, welfare, medical, and health educational workers. The occasion to greet *Health Education Journal* is this note on a tuberculosis paper which makes the excellent point that the disease is a sensitive barometer of the state of environmental well-being and community health services. Tuberculosis is the No. 1 social disease.

WILLIAMS, H. Total War on Tuberculosis. *H. Education J.* 2, 4:162 (Oct.), 1944.

A Record—Few of us could quote without qualification a public statement of opinion made three decades earlier. But without uncrossing a "t" this writer repeats a paragraph from a speech made in 1911. He said then, "In my judgment the visiting nurse is the most important figure in the modern movement for the protection of the public health."

WINSLOW, C.-E. A. Has Public Health Nursing Reached Its Destination? *Pub. Health Nurs.* 36, 12:609 (Dec.), 1944.

BOOKS RECEIVED

- AIDS TO CLINICAL PATHOLOGY.** Including Post-Mortem Technique. By David Haler, M.B. Baltimore: Williams & Wilkins, 1944. 358 pp. Price, \$2.00.
- CHINA'S HEALTH PROBLEMS.** By Dr. Szeming Sze. Washington, D. C.: Chinese Medical Association, 1944. 76 pp. Price, \$1.00.
- DEDICATORY ADDRESSES.** School of Public Health, University of Michigan. 1943-1944. By Thomas Parran, Haven Emerson, James Stevens Simmons, and Marion W. Sheahan. Ann Arbor: University of Michigan, 1944. 56 pp.
- A DIGEST OF THE LITERATURE ON DDT.** By R. C. Roark and N. E. McIndoo. Washington, D. C.: U. S. Department of Agriculture, 1944. Publ. No. E-631. 53 pp.
- ENDOCRINOLOGY. A BRIEF REVIEW FOR PHYSICIANS.** By James H. Hutton, M.D. Springfield: The Illinois Department of Public Health with the coöperation of the Illinois State Medical Society, 1944. 169 pp. Free to Illinois physicians.
- EXPERIMENTAL BASIS FOR NEUROTIC BEHAVIOR.** Origin and Development of Artificially Produced Disturbances of Behavior in Dogs. By W. Horsley Gantt, M.D. New York: Hoeber, 1944. 211 pp. Price, \$4.50.
- HEALTH INDUSTRY.** London: Automatic Telephone & Electric Co., Ltd., 1944. 52 pp. Price, \$.50.
- HEALTH AND MEDICAL CARE. NIAGARA COUNTY, NEW YORK.** Resources and Needs for Health and Medical Care in Niagara County, New York. Study made by the New York State Health Preparedness Commission in coöperation with the Local Health Preparedness Committees in Niagara County. New York: New York State Health Preparedness Commission, 1944. 84 pp. Free from publisher, 292 Madison Avenue, New York, N. Y.
- HIGHLIGHTS OF HEALTH AND MEDICAL CARE. NIAGARA COUNTY, NEW YORK.** A Summary of Resources and Needs for Health and Medical Care in Niagara County, New York. Study made by New York State Health Preparedness Commission in coöperation with Local Health Preparedness Committees in Niagara County. New York: New York State Health Preparedness Commission, 1944. 10 pp. Free from publisher, 292 Madison Avenue, New York, N. Y.
- HIGIENE Y SALUD PUBLICA.** By Charles Frederick Bolduan, M.D., and Nils William Bolduan, M.D. Bogota, S. A. Editorial Antena, 1943. 268 pp.
- INTRODUCTION TO PARASITOLOGY.** With Special Reference to the Parasites of Man. 7th ed. By Asa C. Chandler, Ph.D. New York: Wiley, 1944. 716 pp. Price, \$5.00.
- THE MARIHUANA PROBLEM IN THE CITY OF NEW YORK.** Sociological, Medical, Psychological and Pharmacological Studies. By the Mayor's Committee on Marihuana. Lancaster: The Jaques Cattell Press, 1944. 220 pp. Price, \$2.50.
- PHYSICAL GROWTH FROM BIRTH TO TWO YEARS: I. Stature.** A Review and Synthesis of North American Research for the Period 1850-1941. By Howard V. Meredith, Ph.D. Iowa City: University of Iowa Press, 1943. 337 pp. Price (paper), \$1.50; (cloth), \$1.75.
- THE ROMANCE OF MEDICINE.** The Story of the Evolution of Medicine from Occult Practices and Primitive Times. By Benjamin Lee Gordon, M.D. Philadelphia: Davis, 1944. 624 pp. Price, \$5.00.
- SCHOOL'S OUT.** Child Care Through Play Schools. By Clara Lambert. New York: Harper, 1944. 225 pp., illus. Price, \$2.50.
- SOLDIER TO CIVILIAN.** Problems of Readjustment. By George K. Pratt, M.D. New York: McGraw-Hill, 1944. 233 pp. Price, \$2.50.
- SELECTED FOOD AND NUTRITION PUBLICATIONS.** New York: The Committee on Evaluation of Printed Materials. New York City Food and Nutrition Program, 1944. 12 pp. Price, \$.25.
- TECHNIQUE OF THE STANDARD KAHN TEST AND OF SPECIAL KAHN PROCEDURES.** By Reuben L. Kahn. Ann Arbor: University of Michigan, 1944. 52 pp. Price, \$.25.
- TUBERCULOSIS RIFEPENCE STATISTICAL YEARBOOK FOR 1943.** With comparative summaries for 1942, and five-year period 1939-1943. New York: New York Tuberculosis and Health Association, 1944. 40 pp. Free from publisher, 386 Fourth Avenue, New York, N. Y.
- WHAT IS TUBERCULOSIS? ITS CONTROL AND PREVENTION.** By Milosh Sekulich, M.D. London: Research Books Ltd., 1944. 96 pp. Price, \$1.00.

ASSOCIATION NEWS

Announcement

of

A Reporting Area for Health Practices

The Committee on Administrative Practice of the American Public Health Association Announces a Plan for Developing a Reporting Area for Health Practices to succeed the National Health Honor Roll, formerly the Inter-Chamber Health Conservation Contest.¹

THE Reporting Area for Health Practices represents a logical development after long experience in the appraisal of local health work. It is a service that the Association has been encouraged to give as a result of growing appreciation of the *Evaluation Schedule, Health Practice Indices*, and the consultant service to local communities and to state directors of local health service.

This project, made possible through a grant from The Commonwealth Fund of New York, is sponsored in the United States by the A.P.H.A., and in Canada by the Canadian Public Health Association in coöperation with the A.P.H.A.

The plan has wartime significance. It is particularly well adapted for the analysis of facilities in war-expanded localities and is an aid to post-war planning.

The contest feature or granting of awards to high-scoring communities has been discontinued.

Local Participation.—All county, city-county, and multiple county health departments providing full-time health service, together with cities of over 25,000 population with full-time health service, may fill out *Evaluation Schedules* and submit them to the A.P.H.A. as early as possible in 1945, but in no event later than April 15. Schedules will be welcomed from communities in continental United States, Alaska, Hawaii, Puerto Rico, the Virgin Islands, and the Dominion of Canada.

These schedules will be graded. Grading Charts and interpretive letters will be returned to communities. A new issue of *Health Practice Indices* will be published containing the results of the grading in chart form. Communities, whose schedules contain adequate material, will be listed in *Health Practice Indices* as constituting the Reporting Area for Health Practices.

The new issue of the "Indices" will include the data now shown in the 1944 edition, to which will be added the data from schedules newly submitted in 1945. Where a community represented in the 1944 edition also submits data for the 1945 edition, the latter data will be substituted for that of the previous year.

State Participation.—Following the practice of recent years, the service is linked with that of state health departments. Under this plan the state health department makes contact with its own communities, inviting their participation. Schedules are distributed by the states. When completed, two schedules are returned to the state department of health, which in turn forwards one copy from each community to the A.P.H.A. Eight states have already indicated their intention to follow this plan. The completed schedule provides the state with concrete information on local health work. This material is invaluable to the bureau of local health service as well as to the participating community.

New Features Planned for "Health

Practice Indices”—The lines in the charts of this annual series will be given identifying numbers. Each community will be informed of its own number. This will enable a community to determine its standing in the different charts. The names of communities in the Reporting Area will be shown. The names of state health departments actively participating in the promotion of the program will likewise be indicated.

Advantages in Local Health Evaluation—Each participating community profits from a study of its own public health facilities, utilizing a standard form. Committee participation with the health officer in filling out the schedule enlarges community understanding and support of local health needs. A community is contributing to the advancement of public health generally, thus making available a widespread sampling of existing health practices. By representation in *Health Practice Indices* a community can see

itself in the “mirror” of nation-wide health practices. The charts with local positions indicated provide useful material in community health education either through lantern slides or printed reproductions.

In the development of this program many community organizations, such as chambers of commerce, civic luncheon clubs, parent-teacher associations, women's clubs, tuberculosis associations, the press, etc., are in a position to aid substantially and effectively in bringing the program to its greatest fruition. For those interested in establishing health committees through chambers of commerce, useful information may be obtained by writing directly to the U. S. Chamber of Commerce, Washington, D. C.

Schedules are now available and may be obtained directly from the A.P.H.A. or through state health departments.

REFERENCE

1. *A.J.P.H.*, 34, 10:1099 (Oct.), 1944.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

George M. Anderson, M.D., State Capitol, Cheyenne, Wyo., State Health Officer
 Daniel S. Baughman, M.D., 900 Washington Ave., N.E., Madison, S. D., Supt. Lake County Board of Health
 Charles H. Blandford, M.D., Hardin County Health Dept., Elizabethtown, Ky., Director
 Albert R. Da Costa, M.D., 129 N. Virginia St., Reno, Nev., City-County Health Officer
 Mortimer S. Falk, M.D., M.S.P.H., Denver General Hospital, Denver 4, Colo., Asst. Surgeon (R), U. S. Public Health Service, Denver Rapid Treatment Center
 Michael G. Frich, M.D., Monroe County Health Dept., Box 32, Key West, Fla., Health Officer
 John W. Gilmore, M.D., 529 Main St., Wheeling, W. Va., City-County Health Commissioner
 Ralph L. Gorrell, M.D., 723 Arizona, Trinidad, Colo., Director, City-County Health Unit

Paris L. Gray, M.D., Box 428, Elkins, W. Va., Randolph County Health Officer
 Raymond F. McAteer, M.D., 11 E. Main St., West Warwick, R. I., District Health Officer
 William E. Mountford, M.D., Bureau of Health, City Hall, Trenton, N. J., City Health Officer
 J. E. Oliner, M.D., 500 Ogden Ave., Fairmont, W. Va., State Health Commissioner
 Paul T. Powell, M.D., Kay County Health Dept., Ponca City, Okla., Director
 Henry D. Reid, M.D., C.M., Lancaster Hospital, P. O. Box 120, Fairville, N. B., Canada, Medical Officer in Charge, Quarantine Station, Dept. of National Health and Welfare
 Luiz Barbosa Romeu, M.D., 426 N. Ingalls, Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health (Health Officer, Brazil)
 Ruy Soarts, M.D., Univ. of Michigan School

of Public Health, Ann Arbor, Mich., Student (Health Center Chief, Brazil)
 Plinio Teofilo de Aguiar, M.D., Univ. of Michigan School of Public Health, Ann Arbor, Mich., Student (Health Center Chief, Brazil)
 Carl H. Wendel, C.P.H., 574 Valley St., Maplewood, N. J., Health Officer
 David B. Wilson, M.D., M.P.H., U. S. Public Health Service, Bethesda 14, Md., Surgeon
 Roy H. Wilson, M.D., Richfield, Utah, Deputy State Health Officer and Director, District 5
 Foster H. Young, M.D., Kingstree, S. C., Medical Director, Williamsburg-Clarendon Counties

Laboratory Section

Margaret R. Baker, M.D., Children's Hospital, Akron, Ohio, Bacteriologist
 Raul Juan Brea, 806 E. Kingsley St., Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health
 John S. Bryan, 641 Parkway Ave., Trenton 8, N. J., Director of Technical Control, Walker-Gordon Laboratory Co.
 Daniel A. Carrara, C.Ph.M., U.S.N., Laboratory, Naval Dispensary, Navy Dept., Washington, D. C., In Charge of Dispensary Laboratory
 Capt. Leon J. Cohen, M.C., Chief of Laboratory, Station Hospital
 Hunter S. Cook, M.D., 235 N. 15th St., Philadelphia 2, Pa., Acting Head, Dept. of Bacteriology and Preventive Medicine, Hahnemann Medical College
 Capt. Charles C. Croft, Sn.C., 4th Service Command Medical Laboratory, Fort McPherson, Ga., Chief, Venereal Disease Diagnosis Dept.
 Gilman K. Crowell, M.S., State Dept. of Health, Concord, N. H., Director, Div. of Food and Chemistry
 C. N. Wentworth Cumming, Carworth Farms, Inc., Rockland County, New City, N. Y., President
 Dorothy P. Deutsch, Middletown Milk & Cream Co., Inc., Slate Hill, N. Y., Laboratory Technician
 John F. Enders, Ph.D., 25 Shattuck St., Boston, Mass., Harvard Medical School, Bacteriology and Immunology
 Helen B. Funk, M.S., Milwaukee-Downer College, Milwaukee 11, Wis., Instructor of Bacteriology and Zoölogy.
 Lila B. German, P. O. Box 225, Fulton, N. Y., Bacteriologist, Sealright Co., Inc.
 Josephine L. Gilmore, 29th Court, Pueblo, Colo., Bacteriologist, Rapid Treatment Center
 Harlan A. Howard, M.S., 750 N. Pleasant, Amherst, Mass., Chemist and Bacteriologist, Howard Laboratories
 Leon S. Idoine, 2257 Lawrence Ave., Toledo 6, Ohio, Instructor of Bacteriology, University of Toledo
 Arthur E. Lager, D.V.M., P. O. Box 310, Waltham 54, Mass., Instructor, Dept. of Veterinary Preventive Medicine and Public Health, Middlesex Univ.
 Bei-tsung Li, 1534 Stockwell Hall, Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health
 Milan V. Novak, M.D., 1853 W. Polk St., Chicago 12, Ill., Prof. and Head, Dept. of Bacteriology and Public Health, Univ. of Illinois
 Robert J. Patrick, M.S., Michigan State College, East Lansing, Mich., Instructor, Dept. of Bacteriology and Public Health
 Lois G. Pine, 833 N. Spaulding Ave., Los Angeles, Calif., Laboratory Technician, Los Angeles County Health Dept.
 Estelle F. Richmond, 35 S. Eastfield Ave., Trenton 8, N. J., Asst. City Chemist
 James T. Ritter, Public Health Laboratory, Capitol Bldg., Cheyenne, Wyo., Senior Serologist
 Gladys E. Sather, 5015 Lawton Ave., Oakland 9, Calif., Teaching Asst., School of Public Health, Univ. of California
 Capt. Morris Solotorovsky, Bacteriologist and Serologist
 Max T. Traîner, M.S., AAF Regional Station Hospital, AFTAC, Orlando, Fla., Senior Medical Technician
 Mary E. Woodrow, Box 2323, W. Jackson P. O., Jackson, Miss., Bacteriologist, State Hygienic Laboratory

Vital Statistics Section

Cathryn M. Barrick, P. O. Box 2637, Boise, Ida., Junior Public Health Representative, U.S.P.H.S.; Record Analyst, Idaho Rapid Treatment Center
 Ernest A. Lowinger, M.D., 444 Aldine Ave., Chicago, Ill., Deputy Registrar and Section Chief of Vital Statistics, Dept. of Health
 Robert L. McNamara, Ph.D., U.S.P.H.S., Bethesda, Md., Social Science Analyst, National Tuberculosis Assn.
 Capt. Frank A. Weck, M.A.C., Office of The Surgeon General, U. S. Army, Washington, D. C., Insurance and Medical Statistics

Engineering Section

Harold G. Baugh, Box 349, Wahiawa, Oahu, T. H., Engineer of Water and Sewage, U. S. Army
 John F. Block, Ph.G., 4302 Woodlea Ave., Baltimore 6, Md., Senior Sanitary Inspector, City Health Dept.

Fernando Castellon-Garcia, 809 Catherine, Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Edwin F. Coffin, Jr., State Dept. of Public Health, Nashville 3, Tenn., Asst. Engineer (R), U.S.P.H.S.

Richard Dunseth, 603 Bryn Mawr Blvd., Springfield, Ill., Engineering Asst., Div. of Sanitary Engineering, State Dept. of Public Health

Glenn C. Fulkerson, 1603 Carolina Ave., Kingsport, Tenn., Senior Sanitarian, Sullivan County Health Dept.

Ralph F. Johnson, 6122 S. Bishop St., Chicago, Ill., Sanitary Engineer (on leave from Glynn County, Georgia, Board of Health)

Kenneth M. Jones, P. O. Box 22, Bloomfield, N. J., Sanitarian, Bloomfield Health Dept.

Vincent Kavaney, State Public Health Laboratories, Bismarck, N. D., Sanitarian

Harold P. Spears, 96 Morcell, Orange, Tex., Sanitary Engineer, Orange City-County Health Unit

William C. Strom, 552 N. Yolo St., Willows, Calif., Sanitary Inspector, State Dept. of Public Health

Clair V. Swearingen, City Water Co., Chattanooga, Tenn., Chemist

Industrial Hygiene Section

Valliant C. Baird, M.D., P. O. Box 2180, Houston 1, Tex., Chief Physician, Humble Oil & Refining Co.

Beatrice B. Berle, M.D., c/o Ambassador A. A. Berle (Rio de Janeiro); Dept. of State, Washington, D. C., Chief Medical Officer, War Production Board Health Unit; Surgeon (R), U.S.P.H.S.

Lt. Col. Emil B. Cekada, M.C., Asst. Surgeon, A.U.S.

Hamnett T. Douglas, M.D., C.M., Dept. of National Health and Welfare, Ottawa, Ont., Canada, Chief, Medical Investigation Division

Merril Eisenbud, 535 W. 110th St., New York, 25, N. Y., Industrial Hygienist, Liberty Mutual Insurance Co.

Esther M. Newton, 2309 Mt. Vernon Ave., Point Pleasant, W. Va., Nurse, Marietta Mfg. Co.

Sarto R. Plamondon, Ministry of Health & Social Welfare, Quebec, P. Q., Canada, Senior Engineer, Div. of Industrial Hygiene

Food and Nutrition Section

Irene L. Brandt, 715 Jordan, Mt. Vernon, Ill., Interested in Food and Nutrition

Reida M. Cailleau, D.Sc., 3260 Valley Drive, Alexandria, Va., Nutritionist, Pentagon Post Restaurant

Norman A. Dubois, Ph.D., Room 14, Town Hall, Brookline, Mass., Asst. Agent and Chemist, Brookline Board of Health

Fannie Fleischman, 209 N. Thayer, Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Luz Iraida Franco, 714 East University, Ann Arbor, Mich., Student, University of Michigan School of Public Health

Alice B. Kline, M.S., 1024 Main St., Bridgeport, Conn., Nutritionist, Connecticut Dairy and Food Council

Ethel M. Pottenger, M.S., 397 State St., Albany, N. Y., Nutritionist, State Health Dept.

Helen E. Walsh, M.A., 2647 Buchanan St., San Francisco 15, Calif., Field Consultant for Western Region, War Food Admin.

Maternal and Child Health Section

Renato Caetano da Silva, M.D., 426 N. Ingalls St., Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Ella Langer, M.D., Augusta House, Augusta, Me., Asst. to Director, Div. of Medical Services, State Bureau of Health

Public Health Education Section

Elmer J. Anderson, M.A., 1336 Lunalilo St., Honolulu, T. H., Acting Director of Public Health Education, Board of Health

Linnea Anderson, 71 Bay State Rd., Boston 15, Mass., Kellogg Student in Public Health Education, Univ. of Michigan School of Public Health

Winona C. Banister, M.P.H., 318 E. 66th St., Apt. 4R, New York, N. Y., Asst. Health Education Consultant, U. S. Public Health Service

Robert L. Behrends, 321 N. Thayer, Ann Arbor, Mich., Student, University of Michigan School of Public Health

Babette S. Brody, M.S.P.H., 5463 Cornell Ave., Chicago 15, Ill., Health Education Consultant, Chicago Society for the Hard of Hearing

Camille Brown, 1824 Geddes, Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Honorable Brooke Claxton, House of Commons, Ottawa, Ontario, Canada, Minister of National Health and Welfare

Jay B. Colin, Yale Medical School, New Haven, Conn., Medical Student

Marion E. Cole, R.N., 34 Park St., Kennebunk, Me., Teacher of Community Hygiene to Cadet Nurses, Webber Hospital, Biddeford, Maine

B. Frazier Creecy, M.A., 1102 East Ann St., Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health

Elizabeth Dean, M.S., 1411 N. Main St.,
Bloomington, Ill., Asst. Professor of Health
Education, State Normal University

Annabelle L. Desmond, 3217 Connecticut
Ave., N.W., Washington, D. C., Industrial
Feeding Specialist, War Food Admin.

Stephanie F. Ford, M.A., New Road, Mount
Carmel, Conn., Elementary School Teacher

Paul E. Fox, M.A., 648 Mitchell Ave., Elm-
hurst, Ill., Administrative Analyst, U. S.
Public Health Service

Florence T. Garrett, 4303 Montgomery Ave.,
Bethesda 14, Md., Maternity Child Hygiene
Supervisor, Montgomery County Health
Dept.

Helen P. Heyn, 1505 Ottawa Dr., Ann Arbor,
Mich., Asst. in Public Health Economics,
Univ. of Michigan School of Public Health

Sam B. Householder, M.A., 1005 Market St.,
Philadelphia 7, Pa., Exec. Director, Atlantic
Seaboard Agricultural Workers Health
Assn., Inc.

Carmen M. Jimenez de Rivera, 1000 East
Ann, Ann Arbor, Mich., Student, Univ. of
Michigan School of Public Health

Warren T. Kingsbury, M.A., 540 Central
Bldg., Seattle 4, Wash., Washington Repre-
sentative, National Foundation for Infantile
Paralysis, Inc.

Emilia S. LeZotte, 1000 East Ann, Ann Arbor,
Mich., Student, Univ. of Michigan School
of Public Health

Ryland R. Madison, Ph.D., Room 1111, 6331
Hollywood Blvd., Los Angeles, Calif., Mo-
tion Pictures (Health), U. S. Army, Office
of the Coordinator of Inter-American
Affairs

Jean E. McCartney, M.P.H., 1222 Washtenaw,
Ann Arbor, Mich., Student, Univ. of
Michigan School of Public Health

Patricia Mercer, Box 279, Lawrenceville, Ill.,
Health Education Representative, Lawrence-
Wabash-Edwards County Health Dept.

Stephen Moosai-Maharaj, 404 Wenley House,
University of Michigan, Ann Arbor, Mich.,
Student, Univ. of Michigan School of Public
Health

Charron G. Payne, M.A., 503 Oak St.,
Columbus, Ohio, Exec. Secy., Columbus
Tuberculosis Society.

Sarah Rodriguez-Chacon, 714 East University,
Ann Arbor, Mich., Student, Univ. of Michi-
gan School of Public Health

Helen L. Scheibner, 1912 Austin St., Ann
Arbor, Mich., Student, Univ. of Michigan
School of Public Health

Jeannette J. Simmons, 1222 Washtenaw, Ann
Arbor, Mich., Student of Health Education,
Univ. of Michigan School of Public Health

William P. Swan, 1015 Catherine St., Ann

Arbor, Mich., Student, Univ. of Michigan
School of Public Health

Public Health Nursing Section

Florence C. Austin, 69 Main St., Tuckahoe 7,
N. Y., Director, Public Health Nursing
Organization of Eastchester, Inc.

Elizabeth T. Battle, R.N., Health Dept., Hal-
ifax, N. C., Supervising Nurse, Edgecombe-
Halifax District Health Dept.

Minnie H. Blease, Saluda, S. C., District
Supervisory Nurse, State Board of Health
Sudic Bolin, R.N., County Health Dept.,
York, S. C., Supervisor, York County
Health Dept.

Eleanor M. Bragman, R.N., 600 West 168th
St., New York, N. Y., Supervising Public
Health Nurse, Dept. of Health

Bennie L. Buttram, R.N., 314 Court House,
Memphis, Tenn., Supervisor, Crippled Chil-
dren's Service, State Health Dept.

L. Ann Conley, R.N., UNRRA Public Health
Nursing Consultant

Carrie E. dePinto, 11 Peterborough St.,
Boston, Mass., Supervisor of Public Health
Nursing, Visiting Nurse Assn.

Virginia M. Dunbar, M.A., 3601 Connecticut
Ave., N.W., Washington, D. C., National
Director, Nursing Service, American Red
Cross

Bonnie M. Fadeley, B.S. in N., R.N., 114½
Virginia St., Beckley, W. Va., Public Health
Nurse, Raleigh County Health Dept.

Caroline E. Falls, 210 E. 68th St., New York
21, N. Y., Asst. Director, Dept. of Educa-
tional Nursing, Community Service Society

Elizabeth B. Garber, R.N., District Health
Office, Sikeston, Mo., District Field Nurse,
State Board of Health

Juliette A. Giguere, R.N., 18 Blake St.,
Lewiston, Me., Exec. Secy., Lewiston-
Auburn Tuberculosis Assn., Inc.

Franziska Glienke, R.N., 149 Stadium Place,
Syracuse 10, N. Y., State District Super-
vising Nurse, State Health Dept.

Effie Haapaniemi, 1944 Madison Ave., New
York 35, N. Y., Asst. Supervisor, Visiting
Nurse Service of New York

Anette Jacobsen, Public Health Nurse,
Seldovia, Alaska, Territorial Dept. of Health
Jennie V. Larsen, Health Office Dist. 11,
Cedar City, Utah, Public Health Nursing
Supervisor

Hazel H. Losseff, D.P.H., P. O. Box 1566,
West La Vegas, N. M., Supervising Nurse,
Dist. 5, State Dept. of Public Health

Alice G. Mange, R.N., 2247 Newbold Ave.,
Bronx 61, N. Y., Acting Supervisor, City
Dept. of Health

- Janice E. Mickey, M.S., 308 3rd Ave., N.W., Rochester, Minn., Nursing Supervisor, Rochester Public Health Nursing Service
- Virginia P. Osborne, 101 N. Columbus St., Doniphan Bldg., Alexandria, Va., Director and Supervisor, Alexandria Visiting Nurse Service, Inc.
- Alice G. Peak, Cheshire, Conn., Director, Waterbury Visiting Nurse Assn.
- Helen M. Piampiano, 484 William St., East Orange, N. J., Exec. Director, Newark Visiting Nurse Assn.
- Mary K. Safford, R.N., 821 Second Ave., Gallipolis, Ohio, Industrial Nurse, Medical Division, General Chemical Defense Corp. (Pt. Pleasant, W. Va.)
- Isabel H. Smith, 1132 Richmond Rd., South Euclid, Ohio, Instructor of Public Health Nursing, St. Lukes Hospital, School of Nursing
- Helen B. Snow, 710 Highland Ave., Newark 4, N. J., Territorial Supervisor, Metropolitan Life Insurance Co.

Epidemiology Section

- Luis Alberto Boquin, M.D., 601 Catherine St., Ann Arbor, Mich., Student, Univ. of Michigan School of Public Health
- Neil D. Josephson, M.D., Box 142, Yale School of Medicine, New Haven, Conn., Student
- Lt. Comdr. Albert A. Weathersbee, U.S.N., District Medical Office, N.O.B., Norfolk 11, Va., District Malariologist, Fifth Naval District

School Health Section

- Evelyn A. Ellingson, Mich. Dept. of Health, Lansing, Mich., Regional Public Health Nursing Consultant
- Viola E. Pillot, R.N., 45 Oakland Ave., Huntington, N. Y., Teacher and School Nurse, Huntington Public Schools
- Albert Reinherz, Ph.D., 4 Carol Ave., Brookline 46, Mass., Interested in health education in schools

Dental Health Section

- Charlotte S. Greenhood, D.D.S., Univ. of California College of Dentistry, Medical Center, San Francisco 22, Calif., Chairman, Div. of Dental Hygiene
- Aida Illueca-A, D.D.S., 1001 E. Huron, Ann

Arbor, Mich., Student, Univ. of Michigan School of Public Health

Unaffiliated

- Odin W. Anderson, M.A., 521 S. Forest, Ann Arbor, Mich., Instructor, Univ. of Michigan School of Public Health
- George Brock Chisholm, M.D., 137 Acacia Ave., Ottawa, Ont., Canada, Deputy Minister of National Health, Dept. of National Health and Welfare
- Arthur Fishman, 166 Ash St., Waltham, Mass., Student of Veterinary Medicine, Middlesex University
- Cpl. A. E. Hollenbeck, 2916 Steiner St., San Francisco 23, Calif., Laboratory Technician, Dante Annex, Letterman General Hospital
- Marion Thomas Jeffries, 512 Florida Bank Bldg., Orlando, Fla., State Representative, National Foundation for Infantile Paralysis, Inc.
- Frank V. Meriwether, M.D., 852 U. S. Custom House, Chicago, Ill., Director, Dist. 3, U. S. Public Health Service
- Herbert P. Ramsey, M.D., 1726 Eye St., N.W., Washington 6, D. C., Chairman, Washington Metropolitan Health Council of Social Agencies
- Helen D. Rysan, M.A., 864 W. 4th St., Salt Lake City 4, Utah, Medical Social Worker, State Dept. of Health
- Joseph I. Sollins, 1073 W. Kensington Rd., Los Angeles 26, Calif., Food Poisoning Investigator, City Health Dept.
- Allan Stone, 303 Wilder Bldg., St. Paul 2, Minn., Exec. Secy., St. Paul and Ramsey County Public Health Survey
- Wendell Holmes Tisdale, Ph.D., DuPont Experiment Station, Wilmington, Del., Manager, Pest Control Research Section, Grasselli Chemical Dept.
- Carl Westerman, Warren and Morris Streets, Jersey City 2, N. J., Secretary, Onyx Chemical Corp.

DECEASED MEMBERS

- Gordon B. Moffat, M.D., D.P.H., Kalamazoo, Mich., Elected Member 1931, Health Officers Section
- Myron T. Townsend, Ph.D., Bloomington, Ill., Elected Member 1938, Public Health Education Section

JOURNALS WANTED

The A.P.H.A. headquarters has exhausted its supply of June and August, 1944, issues of the JOURNAL. Any Journals for 1939 through 1944 will be welcome, and can be used. Members who can spare these issues are requested to send them (collect) to the A.P.H.A. at 1790 Broadway, New York 19, N. Y.

EMPLOYMENT SERVICE

POSITIONS AVAILABLE

(Supplemental to lists in recent JOURNALS)

Wanted: California State Bureau of Industrial Health has immediate opening for assistant industrial hygiene engineer, temporary appointment pending civil service examination. Salary range \$215-\$275 per month, plus \$25 per month wartime increase. Address Chief, Bureau of Industrial Health, 2002 Acton St., Berkeley 2, Calif.

Wanted: Director for well established health department in Mecosta and Osceola Counties. Permanent position for qualified public health physician. Salary range depends on training and experience. Apply Mildred Bauer, R.N., Acting Director, Mecosta-Osceola Health Dept., Big Rapids, Mich., giving full information with first letter.

Wanted: Health education worker, experience in group work desirable but not essential. Salary \$1,800-\$2,400 plus \$35 car allowance, depending upon qualifications. Apply Box P, Employment Service, A.P.H.A.

The Personnel Department, State of Connecticut, Hartford, has announced open competitive examinations for the position of Local Health Consultant. The salary range is from \$5,100 to \$5,700 per annum. The last date for filing application is March 31, 1945. The appointee would act in an advisory capacity to the Bureaus of the State Health Department and to local health departments in rela-

tion to local health administration. Requirements include United States citizenship and graduation in medicine with not less than five years' employment in public health work including experience as a health officer or a completion of post-graduate training in public health work and three years' employment of similar type. Application form PLD-1 may be obtained from the Personnel Department.

Physician Wanted immediately for position of assistant health officer to direct Maternal and Child Health program. Man or woman physician with pediatric or public health training preferred. Position permanent. Travel expenses paid or car furnished. Salary \$5,460 to start. Apply E. E. Palmquist, M.D., King Co. Health Officer, 402-L County-City Bldg., Seattle 4, Wash.

Health Educator Wanted: Position available now. Salary to start \$3,000 plus travel expense or car furnished. Applicants must have at least bachelor's degree with some specialized training in health education. Experience desirable. Apply E. E. Palmquist, M.D., King Co. Health Officer, 402-L County-City Bldg., Seattle 4, Wash.

Wanted: Director of Laboratories for Milwaukee Health Department. Training and experience in both chemistry and bacteriology required. Apply to City Service Commission, City Hall, Milwaukee 2, Wisconsin.

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Opportunities Available

WANTED—(a) Public Health physician; municipal department of health; generalized program; work includes well baby clinics, maternity centers, preschool clinics and venereal work for the indigent; woman eligible; college town of 100,000, not far from Chicago. **(b)** Medical superintendent to direct hospital group; duties include directing division of public health; county-operated institution; wealthy county having population of 75,000; Pacific Coast. **(c)** Woman physician to serve as chairman, department of health and physical education, co-educational college; department preferably one of the most modern in the country; town of 5,000 located short distances from two university medical centers; Fall appointment. **(d)** College health physician; 400 students; part-time appointment, opportunity for developing private practice; Philadelphia area. **PH2-1** The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago, Ill.

WANTED—(a) Director of public health program; generalized public health nursing program; new division of public health; city-county health department, Southwest. **(b)** Outpatient supervisor; five and a half days week; \$2,300, meals; 500 bed teaching hospital; Middle West. **(c)** School nurses; duties consist of supervising health in high school and junior college; approximately 450 students; preferably someone who could teach class in physiology or hygiene; \$2,300-\$3,000; northern California. **(d)** Resident instructor in public health nursing; 300 bed hospital located in university medical center, West. **(e)** Supervisor of public health nurses; generalized program including school and industrial nursing; staff of seven nurses; East. **(f)** Field nursing consultant and, also, public health consultant for hospital service; base salaries, \$2,600; Middle West. **PH2-2** The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago, Ill.

WANTED—(a) Industrial hygiene chemist; division of industrial hygiene, state department of health; woman eligible; \$250-\$300. (b) Sanitary engineer; duties consist of complete responsibility for, sanitation; new ordnance plant; Indiana. (c) Industrial hygiene engineer; duties include considerable traveling; headquarters, Chicago; \$3,000-\$3,600.

(d) Bacteriologist well qualified in medical parasitology; municipal laboratories established to utilize recently developed laboratory diagnostic procedures in connection with virus diseases; Middle West. PH2-3 The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago.

Situations Wanted

YOUNG PHYSICIAN—Well trained as flight surgeon is available; prefers position involving high altitude experimental work; experience includes planning and supervising construction of aero-medical department and high altitude test chamber; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Illinois.

BACTERIOLOGIST—B.S., M.S., Ph.D. degrees state university (majors: Zoology and Bacteriology); past several years, assistant professor of parasitology, state university; age, twenty-eight; ineligible military service because of non-incapacitating physical disabilities; recommended as excellent research man, possessing splendid aptitude in organization and directing research projects. For further information,

please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Illinois.

HEALTH EDUCATOR—B.S. in Education, M.A. in Health Education; excellent background in physical education; record of successful experience as industrial and public health counsellor. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Illinois.

YOUNG DENTIST—Veteran World War II; splendidly trained; four years, oral surgeon and chief of dental clinic and dental service of large division; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Illinois.

NEWS FROM THE FIELD

AMERICAN CANCER SOCIETY

J. Louis Neff, the Executive Director of the American Cancer Society (formerly the American Society for the Control of Cancer) has announced that the Society has now moved from 350 Madison Avenue to the Empire State Building, New York, N. Y. An expanded program with a change of policy is related to this move. According to Mr. Neff, for 31 years the society's program has been largely an educational effort directed toward the general public. The present expansion of program will include efforts to coördinate, encourage, and perhaps assist in cancer research projects, and to offer similar services in the field of service to the cancer patient. The annual fund raising campaign in April will this year be conducted under the chairmanship of Eric A. Johnston, President of the United States Chamber of Commerce, who has appointed a council with representatives from leaders of all walks of life. Mr. Neff reminds public health workers that they may obtain samples of several new pieces of educational literature prepared by the society on request to the New York office.

DR. RINGLE APPOINTED WASHINGTON STATE DIRECTOR OF HEALTH

Governor Mon C. Wallgren, of the State of Washington, has announced the appointment of Arthur L. Ringle, M.D., as State Director of Health, effective January 22, succeeding Lee Powers, M.D., M.P.H., who has accepted an appointment with UNRRA for overseas assignment.

Dr. Ringle, who is a graduate in medicine from the University of Colorado, has been a resident of the State of Washington since 1937, having been

health officer for two counties, regional medical officer for the Farm Security Administration in the Pacific Northwest, and, since February, 1943, district health officer in Washington. He served as President of the Washington State Public Health Association in 1941.

TYPHUS COMMISSION MEMBERS DECORATED

The United States of America Typhus Commission Medal has been awarded to four members of the Commission, according to a recent announcement by the War Department. These included Colonel Harry A. Bishop, M.C., of the Army; Captain Edward Harvey Cushing, M.C., U.S.N.R.; Dr. Alexander C. Gilliam, Sr. Surgeon, U. S. Public Health Service; and Dr. Fred L. Soper, field staff member of the International Health Division, Rockefeller Foundation.

LASKER FOUNDATION AWARD TO DR. UNDERWOOD

One of two \$500 cash awards of the Albert and Mary Lasker Foundation was presented recently to Dr. Felix J. Underwood, Executive Officer of the Mississippi State Board of Health, Jackson, at the 24th annual meeting of the Planned Parenthood Federation of America in New York. The award to Dr. Underwood was in recognition of having included planned parenthood services as an integral part of the public health program in the State of Mississippi.

CUBAN NATIONAL CANCER CONGRESS

The Director of the Pan American Sanitary Bureau advises, at the request of the Cuban Embassy in Washington, that the Second National Cancer

Congress will be held in Havana, May 5-21, and the Organizing Committee extends a most cordial invitation to any American physicians who may wish to attend and especially to those interested in this disease.

APPROVED COURSES FOR STUDENT DIETITIANS

The American Dietetic Association of Chicago has published a revised list of courses for student dietitians as approved by the Executive Board of the American Dietetic Association. Sixty-seven institutions are recognized in this revised list.

MILTON J. ROSENAU HONORED

The Fifth Annual Forum lecture, at the Seventh Annual Forum on Allergy in Pittsburgh, was delivered in January by Milton J. Rosenau, M.D., Dean of the School of Public Health of the University of North Carolina at Chapel Hill, and Charles Wilder, Professor of Preventive Medicine and Hygiene emeritus, Harvard Medical School, Boston, on "Serendipity in Terms of Mental Allergy." The Forum presented its fifth gold medal to Dr. Rosenau for outstanding contribution to allergy on this occasion. Dr. Rosenau is President-elect of the A.P.H.A.

NEW YORK HEART ASSOCIATION

The New York Heart Association, which since 1926 has been a part of the New York Tuberculosis and Health Association, Inc., will set up a separate organization as of April 1, according to a recent announcement made jointly by J. Burns Amberson, M.D., President of the Tuberculosis Association and Edwin P. Maynard, Jr., M.D., President of the Heart Association. According to the announcement, the expansion of the Heart Association program in the last few years made it inadvisable for the organizations to continue their associated activities.

"The growth of the Heart Association program has been so vigorous and the opportunities for progress so numerous that a separation has become necessary to permit the needed expansion of the work of both organizations." The Heart Association will have offices in the New York Academy of Medicine, 2 East 103rd Street. It has announced a forthcoming campaign to raise \$150,000 to finance itself during the next two years.

NEW YORK STATE CANCELS HEALTH CONFERENCE

The Annual Conference of Health Officers and Public Health Nurses scheduled for Saratoga Springs, N. Y., in June, has been cancelled in compliance with the regulations of the federal government that conventions and other large meetings be eliminated this year, according to an announcement by Edward S. Godfrey, Jr., M.D., State Commissioner of Health. This conference usually attracted some 2,000 persons, including state and local health officers, county and local public health nurses, registrars of vital statistics, and others engaged in public health activities.

MASSACHUSETTS PUBLIC HEALTH ASSOCIATION

At the annual meeting of the Massachusetts Public Health Association held January 25, 1945, the following were elected officers of the Association for the year:

President—L. Jackson Smith, M.D., Springfield
First Vice-President—Charles F. Wilinsky, M.D., Boston
Second Vice-President—Vlado A. Getting, M.D., Dr.P.H., Belmont
Secretary—A. A. Robertson, Boston
Treasurer—Catharine Atwood, Boston
Representative to the Governing Council, A.P.H.A.—Raymond S. Patterson, Ph.D., Boston
Alternate—L. Jackson Smith, M.D., Springfield

LOCAL HEALTH UNITS FOR THE NATION

Dr. Haven Emerson, Chairman of the Subcommittee on Local Health Units, announces that the report of the Committee, "Local Health Units for the Nation" is in print and will be ready for distribution about May, 1945. The study carried on for a period of nearly two years and the resulting report were made possible by a grant of the Commonwealth Fund which is also publishing and distributing the volume.

The report, which will be about 300 pages in length, will propose 1,197 units of local health jurisdiction to cover the Continental United States in place of the more than 18,000 local jurisdictions currently responsible for local health services. It will show both existing personnel and costs for local health services in these units as well as proposed personnel and costs for basic minimum local health protection for every citizen.

PERSONALS

Central States

BRUCE M. BROWN, M.D., acting medical director of the Division of Industrial Hygiene, Iowa Department of Health, Des Moines, has been appointed the new chief of the Division of Industrial Hygiene of the Illinois Department of Public Health, effective December 1. He fills the vacancy that occurred when DR. MILTON H. KRONENBERG* resigned.

D. CLARE GATES, DR.P.H., has been appointed to a newly created position of director of health education in the Minneapolis City Health Department, according to Dr. Frank J. Hill, health commissioner. Although the civil service appointment began January 1, Dr. Gates has filled the position since November 1 through a financial grant from the Hennepin County Tuberculosis Association. Dr. Gates received his degree in public

health at the University of Michigan in 1937.

HENRIETTA M. HERBOLSHEIMER, M.D.,† has been appointed chief of the Division of Maternal and Child Hygiene in the State Department of Public Health in Illinois, effective January 1. During the previous six months she filled this position as acting chief, after having been promoted from a staff position which she had held since May, 1942.

MARY PUTNAM, M.D., field physician of the Wisconsin State Board of Health, has been appointed pediatrician to the Delaware State Board of Health to direct the baby clinics carried on by the Board in the state each month and to handle several crippled children's clinics. Dr. Putnam succeeds DR. MARION S. S. DRESSLER, resigned.

MAURICE F. RABB, M.D., Shelbyville, Ky., has been named chairman of the health committee of the Negro Affairs Commission, which was created late in September by an executive decree of Governor Simeon S. Willis to recommend "practical solutions to problems confronting Negroes in Kentucky in the fields of education, health, housing, economics and civil affairs." The commission organized itself into five units, one of which is that headed by Dr. Rabb.

CLAIR E. TURNER, DR.P.H.,* formerly Professor of Public Health, Massachusetts Institute of Technology, Cambridge, Mass., is conducting a state-wide school health study in Kansas under the direction of DR. FLOYD C. BEELMAN,* Topeka, Kans., secretary and executive officer of the State Board of Health. The study aims to formulate policies, set up standards and make specific recommendations for building strong local health programs.

* Fellow A.P.H.A.

† Member A.P.H.A.

Eastern States

DR. J. BURNS AMBERSON was reelected President of the New York Tuberculosis and Health Association at the annual meeting of the Corporation and the Board of Directors held recently.

STELLA GOOSTRAY, R.N., Director, School of Nursing, Children's Hospital, Boston, Mass., Chairman of the National Nursing Council for War Service for the past two years, was reelected Chairman January 23, 1945. Other officers elected were ANNA D. WOLF, R.N., Vice-Chairman; PEARL McIVER, R.N.,* Secretary; EDWARD ROBINSON, Treasurer.

ROGER GORDON has been appointed Executive Secretary of the Harlem Council on Social Hygiene, New York, N. Y., following his recent retirement as staff member of the American Red Cross. He is a graduate of the New York School of Social Work.

MAJOR WILLIAM REINER-DEUTSCH, SN.C.,† of New York, is now Chief of Laboratory Service at a General Hospital overseas.

A. DANIEL RUBENSTEIN, M.D.,† District Health Officer of the Massachusetts Department of Public Health, has been appointed Assistant in Epidemiology at the Harvard School of Public Health, Boston.

Southern States

DORA E. BRAULT, M.D., has been appointed an epidemiologist with the Massachusetts Department of Public Health. Dr. Brault was formerly with U. S. Public Health Service, her last assignment being that of assistant county health officer in Prince George County, Maryland.

W. D. BURKHALTER, M.D.,* Assistant Health Officer of the Memphis and Shelby County Health Department, Memphis, Tenn., resigned on Janu-

ary 1, 1945, to enter the private practice of pediatrics in Memphis.

LEROY L. FATHERREE, M.D.,† Health Officer of Little Rock, Ark., has been appointed registrar of vital statistics for the city. The appointment is a part of the recent transfer of the vital statistics bureau from the city clerk's office to the health department.

LAWRENCE KOLB, M.D., Medical Director, U. S. Public Health Service, in charge of the mental hygiene division, Bureau of States Services, retired on October 31, concluding thirty-five years with the Public Health Service.

COLONEL ANTHONY J. LANZA, M.C.,* who has been serving as Director of the Occupational Health Division, Preventive Medicine Service, Office of the Surgeon General, Washington, has retired from active duty to resume his work as Assistant Medical Director of the Metropolitan Life Insurance Company, New York.

CHANGES IN HEALTH OFFICERS IN MISSISSIPPI

KENNETH W. NAVIN, M.D., has been named Health Officer of Yazoo City, Miss.

HENRY G. WALDROP, M.D., has been appointed in charge of the Prentiss County Health Department, Booneville, Miss.

NORRIS C. KNIGHT, M.D.,* Meridian, Miss., has been appointed director of the Washington County Health Department.

FLORENCE J. NEELY has been appointed chief of the newly organized Division of Nutrition in the Bureau of Food Control of the Baltimore City Health Department, effective October 30.

COLONEL THOMAS B. TURNER, MC, AUS,* has been assigned as Assistant Chief of the Preventive Medicine

* Fellow A.P.H.A.

† Member A.P.H.A.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 35

April, 1945

Number 4

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Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$5.00 per year for United States, Cuba and Mexico, South and Central America; \$5.50 for Canada; and \$6.00 for other countries. Single copies 50 cents postpaid. Copyright, 1945, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to the Managing Editor, Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.



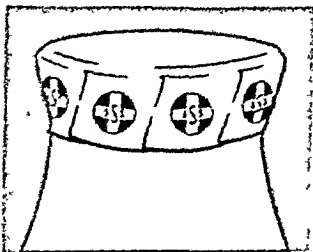
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American Journal of Public Health

and THE NATION'S HEALTH

Volume 35

April, 1945

Number 4

Review of the Evidence as to the Nutritional State of Children in France*

HAROLD C. STUART, M.D., F.A.P.H.A.

*Associate Professor of Child Health, Harvard University, Head of Department of
Maternal and Child Health, School of Public Health, Boston, Mass.;*
Recently, Medical Adviser to the American Red Cross in France

MANY divergent reports have been circulated in this country during recent months respecting the nutritional state of children in France and other occupied countries of Europe. It is important that the American people, and especially those who are to be responsible for the rehabilitation of children in need in Europe, should have as accurate and definite knowledge of existing conditions as present information permits. Unfortunately, most of the published reports contain generalizations which appear to represent personal opinions lacking factual evidence.

On the one hand, there have been references in the lay press and in relief propaganda literature to the starving millions in German occupied countries. On the other hand, reports from parts of France and Italy thus far liberated

indicate surprise at the general well-being of the people in these regions. The discrepancies between these general statements and the few reports based on careful study leave considerable doubt as to the accuracy of the former. Whether one is favorably or unfavorably impressed by the appearance of the children in a foreign country depends in some measure upon whether or not the observer had been familiar with these countries before the war, as well as upon whether he was competent to appraise the nutritional status of children. Such appraisal is a difficult undertaking, even when time and facilities are available for making careful examinations. However, disagreement between reports from different sections of France or between France and neighboring countries may represent actual differences in local food supplies and health conditions. As examples, most rural areas in France probably have suffered far less than the larger French cities, and French children on

* Presented at a Joint Session of the School Health, Maternal and Child Health, and Food and Nutrition Sections of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

the whole have probably suffered less than Belgian children.

When attention is confined to the reports which have been based upon actual studies and to figures which reveal the incidence of various manifestations of undernutrition, a pattern of malnutrition emerges with reasonable consistency. The most up-to-date evidence on this subject comes from France, and little of this is based upon studies subsequent to the breaking of diplomatic relations between the United States and Vichy France in November, 1942. Reports from other countries in western Europe¹⁻⁷ suggest that the general picture is not fundamentally different in these countries, although local conditions have caused considerable variation in the incidence of the various manifestations of malnutrition. Specific deficiency diseases may have been encountered somewhat more frequently than in France, but there is no indication of the occurrence of any of these in epidemic form. The same may be true of certain areas in France where careful studies have not been made, for local food supplies have been less adequate in some districts than others, depending upon the self-sufficiency of the region and its particular transportation problems. However, a recent report of the League of Nations⁷ states that reduction in food supply tends to fall most heavily on the non-farming population and more especially on the working population in the industrial centers. It states further that "farmers are living on a nutritional level which is not much lower than before the war." We may, therefore, review the studies which have been conducted principally in urban centers in unoccupied France and assume that they give a general and not too distorted picture of the seriousness of the nutritional situation and the characteristic problems presenting throughout the occupied countries of western Europe. No con-

clusions should be drawn as to the application of these studies to the situation in the eastern countries.

In order to simplify the presentation of a very complicated situation, we may speak of the diet of children in these urban areas in France as though it had remained substantially the same during the past three or four years. Actually in certain localities there have been temporary acute shortages of essential foods, restrictions have been tightened on certain rationed foods, and the availability of supplemental unrationed foods has varied from time to time. The total value of the diet this year has been unquestionably less adequate than in 1941 for most people, but the overall picture does not justify separate consideration by periods. In reviewing the physical state of children, we must take into account the deterioration which has been going on from year to year as a result of this continuing undernutrition. It is possible to obtain a fairly adequate picture of the state of children in 1941 because of the careful studies carried out during that period and already published. There is just enough material available from studies conducted during 1942 and the first half of 1943 to suggest the rate and extent of deterioration during this period. We may assume that these changes have continued in the same direction and at least at as great a rate since that time. Hence, we may form a picture of the present situation or the situation which will probably exist when extensive relief operations become possible.

I will deal principally with data from sources with which I am personally familiar, that is, from studies conducted first by the Institut de Recherches d'Hygiene, established in Marseilles early in 1941 with the assistance of the Rockefeller Foundation Health Commission, and secondly from studies conducted in unoccupied France for the American Red Cross late in 1942.

CALORIC INTAKE

As to the caloric value of the diets consumed by children in France, consideration of official rations is not very satisfactory because full rations frequently have not been obtainable and the supplemental sources of calories from unrationed foods has always been a considerable factor, though varying from time to time and between individuals. We must rely principally, therefore, upon the few careful dietary studies which have been made.

In 1941, Youmans⁸ found the average caloric value of the diet of children in Marseilles to be about 22 per cent below estimated requirements for age. He found that the average intake for all ages was somewhat below 2,000 calories per day but approached that figure quite closely. He pointed out, however, that some individuals in his series obtained far less than this average amount. Kuhlman,⁹ continuing these same studies, reported for late 1941 an average consumption among children of 1,600 calories. These figures were somewhat higher than reports from other parts of France, but the studies in Marseilles were so thorough that I suspect that the other studies overlooked certain accessory sources of calories in many diets.

Kuhlman,⁹ repeating the same studies in the spring of 1943, reported that children 6 to 13 years of age were consuming on the average 1,725 calories. The average age of these children was approximately 10 years, and this would make the average deficiency in their caloric intake about the same as reported by Youmans for early 1941. Later in this review I will consider the weight and gains in weight of these children, and it will be seen that these figures will suggest a deficiency in caloric intake of about the order indicated by these dietary studies. They do not suggest that reports of average

values of 1,200 to 1,500 calories per day over long periods could be correct.

THE PROTEIN PICTURE

The total protein provided by the French diets during the last three years has been very close to the amount recommended so far as children are concerned. Youmans gave the figure of 63 gm., which is approximately the amount recommended for 10 year old children. However, only 19 gm. of this total were from animal sources, the other 44 gm. being made up of vegetable proteins of varying qualities. It is generally agreed that two-thirds of the protein consumed by children should come from animal sources, and, if this proportion is less, the total protein should be increased. The ratio of animal protein to vegetable protein in the French diet has unfortunately been reversed, and we may conclude that there has been a marked lack of high quality protein so essential for normal growth and replacement of tissues. The lack of adequate calories has probably resulted in the burning of much of the available protein for energy purposes and has made the lack of protein for structural purposes one of the major deficiencies in the French diet.

Turning to the physical examination and the laboratory tests for evidences as to the effects of this protein deficiency, one is surprised to find that edema was never encountered and that, when serum albumin determinations were made, hypoproteinemia was not encountered. In studying the growth and development of these children, ample evidence was found that they were a retarded and under par group, and it seems very probable that a continuing lack of suitable proteins over a period of years was responsible in part at least for their failure to make normal progress. The studies of the size and build and growth of these children will

be considered more fully in another connection.

MINERALS AND VITAMINS

Most of the minerals were found to be provided by the diets in France in adequate or near adequate amounts. Calcium has been somewhat below recommended values because of the lack of milk in the French diet, but this mineral has been secured to a more adequate degree than would have been expected from other sources. The value given by Youmans was 0.85 gm. per day. Roentgenograms failed to reveal calcium deficiency in more than a few of the older children, but rickets was commonly recognized in the films of infants as will be considered further in connection with vitamins.

All of the dietary studies suggest that iron has been present in adequate amounts in the diets of children throughout the past three or four years so that one would not expect to find anemia due to iron deficiency, but all of the studies have shown a considerable number of anemic children. In the spring of 1943 Kuhlman found 25 per cent of all red blood cell counts were under four million, but none had fallen below three million, and the average for the group was 4.34 million. In 15 per cent of the children the hemoglobin level was under 10 gm., and the average value for the group was 11.3 gm. These reports are not sufficiently detailed to be sure what type of anemia was present in these cases, but the chief deficiency seems to have been in the number of red cells. It is probable that in many of these cases there were other than dietary factors operative, but it may be that the prolonged inadequacy of suitable proteins was responsible in some instances.

The only striking and serious vitamin deficiency encountered in these studies was lack of vitamin D. In studying the x-ray films Kuhlman and

I¹⁰ found signs of early rickets in about 50 per cent of all those examined who were between 6 and 18 months of age. Many of these were recognizable on clinical examination. Deformities of healed rickets were often seen among the older children; deformities which must have originated prior to the war. It appears that the use of accessory sources of vitamin D in the feeding of infants had never become a generally accepted custom as a preventive measure in *Marseilles and in many parts of France*. Although sources of vitamin D had become more difficult to obtain as a result of the war, the finding of a high incidence of rickets among infants cannot be considered entirely an effect of war. Cases of florid rickets were frequently seen in the hospitals of Marseilles, but I could not find evidence that there had been any particular increase. The climate of Marseilles was fortunately such as to prevent most of the cases becoming advanced, and the physicians took it for granted that this climatic factor was sufficient to avoid vitamin D deficiency being of great health importance. However, the high incidence of early rickets in a random sample of the infant population would seem to discredit this view. Unfortunately, phosphatase determinations were not made in connection with these studies, so that it is not possible to say how much rachitic activity existed among the older children, but it is probable that lack of this vitamin had some adverse effect upon the health and growth of many of the older children.

Vitamin A was very markedly lacking in the French diet because of the lack of butter fat and the lack of reinforcement of butter substitutes. The average consumption of vitamin A as such was found to be about 100 I.U., but large quantities of carotene were taken in the diet, the figure given by

Youmans being 46,000 I.U. Clinical examinations occasionally revealed mild or suspected signs of deficiency of vitamin A, but no clear-cut active cases were recognized among children. The adaptometer test revealed a small percentage with poor visual acuity in the dark, but the blood vitamin A levels were deficient in 69 per cent of cases. The significance of these divergent findings is not clear, but one may conclude that, although clinical deficiencies were very infrequent and mild, some malnutrition may have resulted from lack of true vitamin A.

No laboratory tests for deficiency of vitamins of the B complex were made in the Marseilles studies. The dietary studies indicated that the provision of thiamin was adequate; of niacin, moderately deficient; and of riboflavin, probably markedly insufficient. No clear-cut clinical evidences of thiamin deficiency were found on examination. A number of cases showed suggestive evidence of riboflavin deficiency, both in the skin and in the conjunctivae.

Although citrus fruits were not obtainable during most of the past three years, the dietary histories suggested that the ascorbic acid intake was made adequate by large provisions from other sources such as potatoes. No clinical or x-ray evidences of deficiency of this vitamin were noted in any case. Youmans reported that in 1941 the blood level was found unsatisfactory in 57 per cent of the children studied, but no determinations of the level in the white cells were made. In the cases studied for the American Red Cross in 1942, no clinical or x-ray signs were encountered, but I have not seen the results of the blood studies made at that time.

PHYSICAL STATUS AND EVIDENCE OF LACK OF GROWTH AND DEVELOPMENT

I had the opportunity of carrying out studies of the growth and development

of children in France, both at the Institute in Marseilles and in connection with the American Red Cross program. Several reports of these studies have already appeared.¹⁰⁻¹² The differences between the children of Marseilles and American children as revealed by measurements as well as by patterns of osseous development in roentgenograms were reported in detail in 1941.¹⁰

It has been indicated that the physical examinations of children in Marseilles revealed few and inconclusive signs of specific deficiency diseases other than rickets among infants and anemia in older children. Few children appeared emaciated or grossly lacking in subcutaneous tissues. Casual observation, however, showed that many of these children were under par, appearing listless and fatigued, having poor posture and small flabby relaxed muscles, and seeming generally to be poorly developed. The most striking feature of their measurements when compared with those of American children was their very short stature for age. They were also slightly narrower in chest and pelvis and their skeletal muscles were often poorly developed. They tended to lack subcutaneous tissue and hence to be underweight, but the average weight for age and height was surprisingly little below the standards of Baldwin and Wood. The osseous age of these children, as judged by the standards of Todd was usually somewhat retarded. In a study of the x-rays taken in the spring of 1941, I found that the retardation in this respect averaged 8.6 months for boys and 4.7 months for girls.

The x-rays and measurements of the children in Marseilles who were examined during November and December of 1942 in connection with the American Red Cross program were sent to me by Kuhlman, and I was able to study them while in detention at Lourdes, France. The findings have

recently been published.¹² The children in this group were all between 10½ and 11½ years of age. It was impossible to discover in the measurements any clear evidence that these children were less well developed than those observed a year and a half previously. The osseous age of these 11 year children corresponded most closely to the standards of Todd for 9½ to 10 years of age.

The reports of studies in Lyons, Clermont-Ferrand, Montpellier, and Monaco made along similar lines for the American Red Cross, were not available before I was taken to Germany, and I have been unable to secure information about them. However, while planning these studies in 1942, I spent much time in conferences with pediatricians in these centers and examined a few children. It appeared that the state of nutrition was much the same in all these cities. I concluded at that time "that a state of general moderate to marked undernutrition was widespread in unoccupied France in the fall of 1942, at least among children over 10 years of age. There was little evidence that this undernutrition had generally reached a stage in which health had been profoundly affected, life endangered, or development more than moderately retarded."

Among the children studied by Kuhlmann in Marseilles in the spring of 1943, only 18 per cent of 233 of school age were more than 10 per cent underweight for height and age, according to the Baldwin-Wood standards. Of 83 children examined in the spring of 1942, and again a year later, only two had lost weight during this period, and 50 per cent had gained a normal amount for age. The average gain of the other 48 per cent had been approximately 65 per cent of expectancy.

Kuhlmann concluded that the situation in 1943 did not show decided ag-

gravation over that found in 1941 and 1942 and that the disturbances observed were doubtless not irremediable, but that the continuance of the unsatisfactory state of affairs described might lead to serious consequences. The surprising fact is that after three years of continuous underfeeding 50 per cent of these children failed to show recognizable signs of malnutrition.

The objection may be raised to the implications of these studies that they have dealt with relatively small numbers chosen at random and that the finding of only two or three children in any such group who were severely malnourished would indicate that there were many such in the total population. This is an important point to remember in all plans for relief, for centers fitted to give intensive rehabilitation care to small numbers of children unquestionably are needed in all large cities in France.

In October, 1942, I had the opportunity of observing the work of the Swiss Red Cross in Geneva, and saw a trainload of 1,000 French children arrive from Paris and the channel ports for a three months' period of rehabilitation in the homes of Swiss families. These children had been carefully picked by French physicians as being the most urgently in need of this care in their communities. Some of these were obviously in wretched physical condition, but many would have required a rather careful examination to be certain that they were suffering from malnutrition.

Reports have just been received from the feeding center maintained by the American Friends Service Committee in Toulouse, dated February, March, and May, 1944, which deal with 218 children selected by the school physicians of that city on the basis of greatest need. I have had the opportunity of studying them through the courtesy of the Committee's head-

quarters in Philadelphia. The medical examination of these children showed two-thirds to be much below normal weight, a few in a cachectic state, and all underweight. One-half were said to show some evidence of decalcification of bones, one-third feeble muscular development, and 5 per cent were anemic. These are findings which one might expect at the extreme of the distribution in any large series in which the general situation is as I have pictured it for the child population of Marseilles.

MORBIDITY AND MORTALITY RATES

The data available on morbidity and mortality rates is too scant or unreliable to justify an attempt to analyze them, but here again the reports of widespread disease and death do not inspire confidence. The writer as late as November, 1942, interviewed many physicians and public health officers in then unoccupied France and was told of increased local mortality rates, especially for diarrhea in infancy and tuberculosis. The total infant mortality rate was said to have risen for the country as a whole during the two preceding years, but no figures were available. It may be presumed that further increases have taken place, but a report written at the beginning of this year (1944) by a physician who has continued to study nutrition in southern France does not suggest that any startling changes have taken place.

POWERS OF ADAPTATION

The surprise with which we review the evidence as to the nutritional state of children in France, in view of the known long continued deficiencies in diet, is probably due to our failure to appreciate the range of the powers of adaptation possessed by human beings. We recognize the remarkable capacity of individuals to adapt to unfavorable climatic and other environmental con-

ditions, but fail to consider the possibility that similar adjustments can be made to gradual and not too excessive deprivations of food.

An article by Mitchell which has just appeared in the *Journal of the American Dietetic Association*¹³ is most timely and impressive from this point of view. Mitchell reviews a number of studies which show the variety and extent of adaptations which can be made by animals and man, but the most pertinent to our problem is an experiment conducted by Benedict and his collaborators in 1917.¹⁴ College students were kept on diets of normal composition but 1,400 calories a day until they lost 12 per cent of their body weight, a period requiring 3 to 10 weeks. The food intake was then raised to an amount sufficient to maintain this lowered body weight at a constant level for the remainder of the experimental period of 4 months. This weight was maintained on the average with a diet of 1,950 calories, even though these students had consumed between 3,200 and 3,600 calories prior to the experiment. These men continued normal activities throughout and the mild deleterious effects which were noted occurred almost entirely during the early weeks of adaptation and disappeared after the 1,950 calorie diet had become established. It is of interest that the average basal metabolic rate of this group was lowered 18 per cent by this dietary change and the energy required to move 1 kg. of body weight one horizontal meter had decreased 12 per cent. Mitchell concludes that nutritional requirements are probably flexible to a degree, depending upon the food available, and that as a result "the detrimental effects of undernutrition are alleviated or quite possibly may be resolved entirely if the extent of undernutrition is not extreme." This is accomplished, according to Mitchell, either by a more

economical use of what little is available or by lowering of requirements, until an equilibrium has been established on the limited food supply. Put in the phraseology of Le Châtelier's law, Mitchell states, "If an animal in equilibrium with its food supply is subjected to nutritional stress such as an inadequate supply of one or more of the essential nutrients, the animal will react in such a way as to minimize as far as possible or to undo entirely the effects of the nutritional stress."

Among the children studied in Marseilles, by no means all of those who had been receiving the most inadequate diets were among those recognized to be malnourished. In spite of almost universally poor diets from our point of view, nearly 50 per cent of the children studied as late as the spring of 1943 in Marseilles failed to reveal recognizable signs of malnutrition. It may well be that this half of the children had more effective powers of adaptation than the others and that individuals differ a good deal in this capacity. At least it seems probable that part of the surprisingly good showing made by the children in France, after such prolonged undernutrition, may be attributed to these little recognized capacities for adaptation.

CONCLUSION

It seems safe to conclude that the growth of French children has been moderately retarded in a very considerable proportion, probably half of those of school age. At least this proportion have shown some signs of general malnutrition, chronic fatigue, or lack of physical fitness. Osseous development has probably been moderately retarded. Their short stature must be attributed in the main to intrinsic causes or to faults in diet antedating the war. The failure to grow normally, in so far as due to nutrition at all, would seem to be related to one

or a combination of three factors— inadequate calories, inadequate amounts of animal protein, and lack of vitamin D. The effects of inadequate calories may be produced in part indirectly by interfering with normal activity which results in poor muscle growth and strength, leading to chronic fatigue and still less activity. The diets actually consumed have proved to be sufficient for the great majority of children to prevent disease or progressive physical deterioration under the existing conditions.

Those interested in the rehabilitation of France, while being thankful that their worst fears have undoubtedly not been justified, should plan on the premise that prolonged moderate undernutrition has had real and important effects upon the health, physical fitness, and growth of children in that country and that a liberal and well rounded diet¹⁵ will be needed for a long period to come if full recovery in health, in growth, and in development are to be accomplished. It is especially important to remember also that the adverse effects of war upon the children of Europe have not been confined to undernutrition, and that full rehabilitation will require attention to many aspects of physical and mental hygiene. Crowding and unsanitary living conditions, lack of adequate public health control of communicable diseases and medical care of the sick have probably had at least as much to do with any increases in mortality rates as have deficiencies in diet.¹⁶⁻¹⁸

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Release of Penicillin for Civilian Use

The War Production Board, Washington, announced in March that steps had been taken to make penicillin available to all hospitals and physicians through normal drug trade channels beginning March 15. It will be supplied in vials containing 100,000 units of sodium penicillin for human parenteral medication. Approximately 1,500,000 vials of this size will be made available for distribution in each month.

At present the drug has been distributed through 2,700 hospitals

under restrictions that have required about 400,000 vials per month, so that the new amount is nearly four times that recently available. This action is said not to affect the export of the drug which has been approved for certain foreign areas where distribution controls comparable to those in the United States are in effect. Applications for the drug hereafter should go through normal drug supply channels rather than through the Civilian Penicillin Distribution Unit established in Chicago in May, 1944.

Health Services for Migrant Farm Families*

FREDERICK D. MOTT, SENIOR SURGEON (R)

*U. S. Public Health Service; Chief, Health Services Branch, Office of Labor,
War Food Administration, Washington, D. C.*

MIGRATION has been part of the pattern of American life throughout the history of this country. As the frontiers were pushed westward, people over and over again moved their families and their possessions to new areas in which they settled and developed their economic and community life. This movement, that of the pioneers, was a migration which had as its stimulus the increased opportunities occasioned by development of a rich and fertile country—opportunities which were constantly present so long as the frontiers remained.

The migration of peoples in the United States has not ceased, but in the later development of our economic life it has changed markedly in character. This paper is concerned with one broad aspect of the general problem of migration in recent years—the problem of migratory agricultural people. The clear-cut trend toward the development of large land holdings, the increasing use of farm machinery, and the impoverishment of agricultural people in many sections of the country, due to depletion and erosion of the soil, have served to create an unrooted, shifting population of dispossessed farm people who move through the cycle of farm ownership to tenancy, to share-cropping, and finally to agricultural labor.

The nation was little aware of the vast problem which was developing throughout the land, and which by the 1930's had assumed relatively vast proportions. Though in urban centers large masses of unemployed and impoverished people are easily discerned because of their concentration, an equal number of such people, where highly mobile and scattered over sparsely settled rural areas, are not readily apparent to the unpractised eye. The movement of such peoples from one area of employment to another throughout the greater part of the year, their concentration in miserable shelters on the outskirts of towns, and their long hours of work in the field during the day tend to keep them out of sight and to make the problem of their existence much less apparent to the average busy citizen.

The Grapes of Wrath, through its penetrating study of the Joad family, served to dramatize the problems of migratory farm workers so vitally that the reading public was rudely shocked. Studies by the Tolan and La Follette Committees and Carey McWilliams' factual book *Factories in the Field* backed up with hard facts and cold figures the fictional version set forth by John Steinbeck.

Here were people presenting problems of housing, nutrition, and medical services—approximately two million of them—lacking the barest necessities we feel essential to a decent existence in

* Presented before the Maternal and Child Health Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

our social structure. Today the extensive program of public health and medical care that is being carried on by the Office of Labor of the War Food Administration, as a wartime agricultural man power measure, represents an outgrowth of the work started by the Farm Security Administration in the 1930's to meet these problems of migratory farm families.

Late in 1935, a camp for migratory farm families was opened in Arvin, Calif., by the Federal Emergency Relief Administration. This camp was transferred early in 1936 to the Farm Security Administration which, at about the same time, constructed and opened the camp at Marysville, Calif. These camps were the forerunners of a growing number of federal camps for farm workers, which have come to number about 250. The earliest camps, those developed first in California and Arizona, then in the Pacific Northwest, and later in Texas and Florida, could of course care for only a small minority of migratory farm families in those areas, but they were vastly important in developing patterns by which the problems of migrants could be attacked. Some of the camps were of permanent construction, whereas others were "mobile," suited to the needs of seasonal workers following the crops. They were constructed to provide minimum decent housing, good sanitation, and community and recreational services. The families were encouraged to take part in the administration and maintenance of the camps by participating in elected camp councils, working in cooperation with the camp manager and his staff.

It must be remembered that in a majority of instances these people were ineligible for local relief and medical services because their mobility made them, for the most part, nonresidents under the various residency laws of the states. Time does not permit a dis-

cussion of the numerous problems of ill health among these migrants which were not being met even to the smallest degree. Serious illness and malnutrition among them were increasingly reported. The fear of serious epidemics was ever present. Public health authorities were turning increasing attention to the problem, but the desperate need for medical and dental services remained.

A plan to administer federal aid in cooperation with the California State Relief Administration was soon superseded when it was decided that relief furnished to transients by the Farm Security Administration through its facilities should include medical care. Prepayment plans such as those sponsored by the Farm Security Administration among low-income farm families were not adaptable to meet the needs of migrants, for there was not only a constantly shifting population to deal with, but one unable to purchase medical care through its own resources even on the prepayment basis. Payment for medical care for these migrants through use of individual grants, moreover, was not workable, because of the high mobility of the families. Accordingly, an interesting mechanism was set up in cooperation with the State Health Department, the State Relief Administration, and the State Medical and Dental Associations. A corporation was organized known as the Agricultural Workers Health and Medical Association, a nonprofit association financed by grants of funds from the Farm Security Administration. The association could engage in any activities related to the provision of medical and dental services, nursing, and hospitalization. As camps were established in other regions, similar medical care corporations were organized to provide services for medically indigent migratory farm families.

During these pre-war years, regional health programs were directed by Farm

Security Administration medical officers who, with their staffs, supervised general health and sanitation work in their regions and served also as medical advisers to the agricultural workers' health associations. Each association, operating through a board of directors including representatives of professional societies, public health agencies, and general public and agricultural interests, contracted with local practitioners and institutions to render needed services to farm workers and their families.

Services were rendered chiefly through health centers or clinics set up in government farm labor camps and at other points of farm labor concentration, in the charge, usually, of a full-time nurse. Local health departments coöperated in holding various public health clinics and conferences in these health centers. Therapeutic services were rendered by local private physicians or dentists at appointed clinic hours, or, when serious complaints were presented between clinic hours, by referrals to their private offices. Hospitalization was of course provided when necessary, and services even extended to the provision of special diets in cases of malnutrition.

This, then, was the general pattern which had been developed when the war came in 1941. The war was to bring very drastic changes in the national farm labor picture, but the general pattern for providing health services was to prove its worth under new conditions. As large numbers of agricultural workers migrated to the cities in search of more lucrative work in war industries, it became quickly apparent that there would be a shortage of agricultural labor. In 1942 the production of food seemed seriously menaced by the shortage of workers. Emergency funds available to the President were used to bring several thousand Mexican farm workers into the United States and to transport some of

our own workers to points of acute labor shortage.

In the spring of 1943 an act was passed by the Congress setting up an extensive program for the importation of farm workers from other countries, chiefly Mexico and the West Indies, and the mobilization of available farm labor within the United States. Under the international agreements and in accordance with the act adopted by the Congress, the workers imported and transported under this program have been entitled to receive medical care and health services without cost to themselves. Under the Office of Labor of the War Food Administration, the pattern for providing health services which had originally been developed by the Farm Security Administration has been maintained and expanded to meet the needs of all farm workers under War Food Administration jurisdiction.

During this past year the health program has been carried out largely through six agricultural workers' health associations which cover from four to twelve states each. Each operates under a contract with the War Food Administration, whereby the association is paid by the federal government for the services it renders foreign and migratory workers. The associations represent practical coöperation between government and organized professional groups, and they have encountered little difficulty in enlisting the support of local physicians, dentists, and hospitals. The flexible association mechanism lends itself to fast action in a rapidly moving program built around a highly mobile population. Informal agreements can be reached with local doctors and dentists on short notice; nurses can be employed on the spot; drugs and supplies can be purchased in the open market; and bills can be paid the day they are received.

As in pre-war times, the program has been carried out wherever possible

Service, Office of the Surgeon General, Washington. Col. Turner will also continue as Director of the Civil and Public Health Division under the same service.

Western States

THOMAS J. HOWELLS, M.D.,† has resigned as Health Commissioner of Salt Lake City, Utah, effective January 1. Dr. Howells, who held the position nine years, plans to enter private practice.

EDWARD KUPKA, M.D.,† Los Angeles, recently chief of the bureau of tuberculosis of the California State Department of Public Health, has been elected medical director of the La Vina Sanatorium, La Vina, and the Hastings Foundation for Tuberculosis Research, Pasadena, to succeed Dr. CARL R. HOWSON, who resigned, effective January 1, to devote his full time to private practice.

Foreign

JESUINO D. ALBUQUERQUE, M.D.,† Secretary of Public Health of the Federal District of Rio de Janeiro, Brazil, is visiting the United States collecting information for the establishment of a municipal penicillin laboratory in Rio.

MAJOR GUSTAVE J. DAMMIN, M.C.,† recently returned from India where he had been assigned as executive officer of the Sub-Commission on Dysentery of the Army Epidemiological Board, has now been installed as Director of the Laboratories Division of the Preventive Medicine Service in the Office of the Surgeon General.

DR. LUIS ESPINOSA of Havana, Cuba, has been appointed by the President of Cuba to the position of Director of the Division of Pan American Medical and Sanitary Relations of the Finlay Institute.

MAJOR GENERAL MORRISON C. STAYER,

M.C., U.S.A.,* formerly Chief Health Officer of the Canal Zone and Surgeon of the Caribbean Defense Command, is now Surgeon of the Mediterranean Theater of Operations, which includes North Africa, Italy, and the Balkans.

Deaths

BLANCHE M. HAINES, M.D.,* Three Rivers, Mich., formerly head of the Division of Maternal and Infant Hygiene of the U. S. Children's Bureau at Washington, D. C., and director of the Michigan Bureau of Child Hygiene and Public Health Nursing; served as city health officer, member and secretary of the Board of Education, died November 9, aged 78.

BERNARD T. MCGHIE, M.D.,† Deputy Minister of Health and Hospitals for the Province of Ontario, Canada, died January 20 after an illness of several months.

The ART of RESUSCITATION

By Paluel J. Flagg, M.D.

*President, Society for Prevention of
Asphyxial Death*

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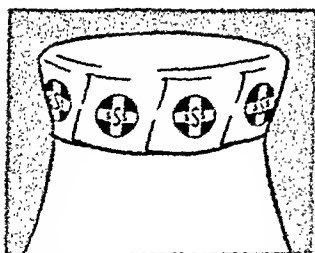
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through clinics in the farm labor supply centers or at other points of farm labor concentration. Approximately 250 clinics are operated during the year, staffed by full-time or part-time nurses. Therapeutic services are provided by one or more local physicians serving at regular clinic hours each week and paid on a per hour basis. Arrangements are made for dental care either on a clinic basis or by referral to the offices of local dentists. A large volume of hospital care is provided, not only for acute conditions but for the correction or amelioration of chronic and disabling conditions affecting health and working efficiency. In two critical areas—in Florida and Arizona—special hospitals have been maintained for farm workers.

At certain points with critical shortages of physicians and dentists, commissioned officers of the U. S. Public Health Service have been used to furnish care. Aside from six medical and dental officers now actively serving in Connecticut, Florida, Idaho, and Washington, there are several full-time dentists engaged by agricultural workers' health associations to operate mobile dental clinics—a highly useful way to bring dental care to a maximum number of those needing it.

With regard to the highly important field of preventive services, the cooperation of state and local health departments is constantly enlisted. The policy is to utilize local health department facilities when they are accessible to the farm workers, or to invite local health department personnel to conduct clinics or health education programs in the facilities of the farm labor camps. Probably the chief province of cooperation this year has been in the control of venereal diseases. Even in this well established public health activity, however, local public health services are often lacking, and it is necessary for the clinic physician, engaged primarily for general therapeutic medical services,

to conduct regular venereal disease clinics. Unfortunately in those very areas in which farm labor concentration runs high, local public health services are generally rather weak, so that the responsibility for preventive services falls chiefly on the personnel in this program.

The initial preventive measure, however, consists of recruitment medical examinations before workers are transported by the federal government. The task is not only to prevent the spread of communicable diseases across state or national boundaries, but also to assure the transportation of workers who will be physically capable of doing strenuous farm work.

In Mexico, for example, every worker is examined by a team of U. S. Public Health Service medical officers, who work in cooperation with Mexican physicians. In addition to a physical examination, an x-ray of the chest is performed and each worker is vaccinated against smallpox. Immunization for Rocky Mountain spotted fever is started in Mexico City and completed on the trains carrying workers to regions where this disease is prevalent. Certain of the defects found in these workers are correctible, and the worker is allowed to come through to this country after the defect is corrected. A laboratory for performing serologic tests for syphilis is being set up in Mexico City. Similar examinations have been done for Jamaicans, Bahamians, Barbadians, and Newfoundlanders. Somewhat less extensive recruitment examinations have been done for interstate migratory workers.

Once farm workers are placed in an area of employment, every effort is made to provide a complete program of preventive services. These have included mass immunizations, chest x-ray surveys for tuberculosis, lectures and discussions on health and personal hygiene, maternal and infant hygiene

clinics, planned nutrition, venereal disease control, environmental sanitation, and safety education and practice. In many places, isolation centers are maintained for cases of communicable disease. Food handlers are routinely inspected, and laboratory tests are performed to eliminate the possibility of food-borne epidemics. The problems of sanitation, particularly in the mobile camps, are tremendous, and constant vigilance is necessary to maintain sanitary facilities in a proper condition.

The predominance, since the onset of the war, of single male workers rather than families has lessened the need, to some degree, for maternal and infant services. Where families are still part of the seasonal farm labor population, however, as they are particularly in parts of Florida, Texas, and the Pacific Coast, well baby conferences are carried on, attended by local physicians, and complete prenatal and postpartum care is rendered. Regular clinics are held also for preschool children, and in a few places where nursery schools are operated, daily health inspections are part of the routine, and health education is an integral part of the school program. For teen-age girls, classes have been conducted in sex hygiene, developing their approach from matters of special interest to young women, such as cosmetic care of the skin.

Some of the camps maintain completely equipped delivery rooms where deliveries can be performed practically under hospital conditions. Where hospitals are locally available, however, maternity cases are usually hospitalized. The usual mother in a farm labor family has had experience with neither a hospital nor a physician during her previous pregnancies, and special problems are presented with respect to overcoming fears and superstitions which have been developed through experience with untrained midwives.

In all these activities, in both the therapeutic and the preventive aspects of the program, the field nurse is a key worker. With the coöperation of the manager in the farm labor camp in which she is stationed, clinics are organized and the workers are educated to use them at the first sign of illness. The task of establishing clinic hours convenient to the workers, in order to conserve their time and productive capacity, and at the same time convenient to the local physician, is often difficult. The nurse's intimate contact with the camp enables her to promote health education, to inspect sanitation and report needed improvements, and to act as a confidante to the workers whose distance from home often causes mild depressions or anxiety attacks. The nurse is furnished with a liberal set of standing orders, issued by the field medical officer and approved by the local clinic physician, to enable her to deal with minor ailments pending the attendance of the physician. Finally, the nurse is a natural liaison officer between the local health agencies, the local physicians, and the farm worker population.

This program costs the federal government about two million dollars annually, or from about \$1.50 to \$2.00 per eligible person per month. Costs vary markedly in different parts of the country and in accordance with the pattern of services. Thus, services rendered on a clinic basis with remuneration at a fixed rate per hour tend to be more economical than services rendered by referral to private offices, with payment being made on the basis of a fee-for-service schedule.

In the course of a year, over 150,000 farm workers and their dependents are involved in this program. Services may be provided only to certain specified categories of farm workers defined in the legislation passed by the Congress. The chief groups covered are farm

workers imported from foreign nations, inter-state transportees, and other migratory farm workers living in areas surrounding government farm labor supply centers to whom adequate medical services are not otherwise available. Our agency is proud of the fact that sickness absenteeism has, according to our records, been kept down to a loss of only 1.5 per cent of available man days, a rate which compares most favorably with the general industrial average throughout the country.

The end of the war will undoubtedly again change the farm labor situation. Importation of foreign workers will certainly be curtailed. Shut-down of war industries will release many families for migration back to the fields—in fact, evidences of this are already seen in California and the Pacific Northwest. Labor surpluses, if they

exist, will once again mean the mass migration of agricultural workers from area to area. Increased use of farm machinery will bring with it a corresponding increase in the number of unemployed in agricultural labor.

We cannot and must not permit another "Grapes of Wrath." We must recognize that while we have agricultural migrants we face certain familiar problems. Migrants are people. They deserve a chance to live in decent housing, to feed and educate their children, to get needed health care for their families. A beginning has been made in the patterns developed in recent years, patterns of federal action supplementing services provided by the states. The lessons of experience must be translated into a really effective long-range program of health and welfare for our migrant farm families.

Summary of Discussion

Dr. John J. Sippy emphasized the great problems created for California because of the migration of labor into that state. He stated, however, that with more prosperous economic circumstances today, he believed that the migrants could afford to pay for their own medical services on a private basis and that there was, therefore, less need for federal subsidy to a medical care program. He stressed the importance of local health department responsibility in handling the problem of health services to migrant workers. Dr. Sippy pointed out that in San Joaquin County, where he was Health Officer, only a small portion of the total migrant population was located in federally operated camps, leaving a great majority housed on the premises of private growers.

Dr. Jessie M. Bierman pointed out that residence requirements for welfare department assistance ruled out aid to the migrant families. She stressed, however, that with regard to the preventive services rendered by health departments the same aid should be given as for local citizens. Dr. Bierman discussed the serious extent of the health needs of this group.

Dr. Myron E. Wegman raised the general question of the proper rôle of the health

department in this entire program. Dr. Mott replied that the burden of care for this group should be shared by the states and the federal government, but he raised the further question on the proper proportions which should be assumed between the federal and state agencies. He pointed out that the cost for complete medical services to this group was relatively high, amounting to as much as \$3.00 per person per month in the Pacific Coast states. The question was: Could this expenditure be borne by the states or local communities without federal assistance? Dr. Sippy reaffirmed his belief that the operation and financial support for this program should be entirely on a local basis. He claimed that the seriousness of the problem had been exaggerated by such books as *Grapes of Wrath*.

Katherine Baker stated that the problem of health services to migrant families was even greater than had been written about. She pointed out that little in the way of proper housing and sanitation on the premises of private farms could be expected when the owners of those farms, responsible for their maintenance, often lived thousands of miles away.

Question from the floor: Are any legal

difficulties encountered in organizing the non-profit organizations which provide health services to the migrants?

Dr. Mott answered that no insurmountable difficulties had been encountered.

Question: Do health departments play any part in the management of these corporations?

Dr. Mott answered that in California and elsewhere there were representatives of the health departments and the U. S. Public Health Service on the Boards of Directors of the corporations.

Question: Are medical records transferred from camp to camp when the migrants move?

Mrs. Baker answered by pointing out the numerous difficulties involved in the rapid transfer of records, indicating that this was a problem still to be solved adequately.

Question: Are health services rendered to day-haul children?

Dr. Bierman answered that no special health services were provided this group in

California, and it was explained that they were not under the jurisdiction of the War Food Administration Office of Labor.

Question: Are health services provided by agricultural workers' health associations in agricultural youth camps?

Dr. Mott answered that he did not know of any, except possibly in Maine, pointing out that these camps were not under WFA Office of Labor jurisdiction.

Question: Is bedside nursing provided to the migrant families?

Mrs. Baker answered that as much bedside nursing was provided as there was time for.

Question: Are any school nursing services provided in this program?

Mrs. Baker answered that the children of migrant families received school nursing services through the regular school nurses in the local communities in which they might attend school. Nursing services are, however, provided in a few nursery schools operated under this program.

Professor Winslow Retires from Yale

Recent announcement has been made of the retirement of Professor C.-E. A. Winslow as Professor of Public Health at Yale University at the close of the current academic year, and of the appointment as his successor of Professor Ira V. Hiscock, now in active service in the Civil Affairs Division of the War Department. Professor Winslow has taught at Yale for thirty years. It is indicated that Yale University has decided to carry the work of his department forward along the same broad lines which he has laid out. For the A.P.H.A. this is largely a family affair,

since Professor Winslow is a Past President of the Association, Past Chairman of the Committee on Administrative Practice, recipient of the Sedgwick Memorial Medal, and is at present editor of the *American Journal of Public Health* and chairman of the Committee on the Hygiene of Housing. Professor Hiscock has been fruitfully active in the work of the Committee on Administrative Practice and in the Health Education Section, and as the moving spirit of the Health Education Institutes. He is now a member of the Editorial Board of the *Journal*.

War and the Birth Rate— A Brief Historical Summary*

LOUIS I. DUBLIN, PH.D., F.A.P.H.A.

*Second Vice-President and Statistician, Metropolitan Life Insurance Company,
New York, N. Y., and Assistant to the Chairman of the American Red Cross*

WAR, as might be expected, affects the course of the birth rate. But the extent of the change from the normal pattern varies widely. Our opinions on this matter are affected to a great extent by what has happened in the two World Wars of the present century. However, there is little ground for believing that these recent experiences are typical of what has happened generally in wartime: indeed, even in these two great conflicts there are remarkable differences as between the various belligerents.

We have comparatively little factual knowledge regarding the extent to which most wars of history have affected the birth rate because the compilation of birth statistics as well as of vital statistics generally is only a relatively recent development. We may conjecture that during some of the great wars of conquest, such as the wars of Alexander and those of the Crusades, in which large numbers of men were involved, the birth rate in the communities from which the men were drawn may indeed have fallen sharply. On the other hand, the wars which involved mass movements of whole populations, such as those which brought the

hordes of central Asia into Europe, may have had little effect on the birth rate of the conquering peoples. In the wars of western Europe from the 15th to the 18th centuries, the birth rate could not have been affected appreciably because armies were comparatively small and very frequently consisted of mercenaries. A probable exception is the Thirty Years' War, when parts of Germany were overrun again and again, and the population was decimated. Possibly another significant exception is Sweden when she was at her height of power. Since she was a comparatively small nation, a sizable proportion of her able-bodied men was probably absent from the country on military service. Most of the wars of the 19th century also involved comparatively small bodies of troops. This was particularly the case with England which engaged in many wars during this time; her small armies usually consisted of professional soldiers and troops drawn from the colonies.

Our earliest concrete evidence of the effect of war upon the birth rate is provided by the records for France early in the 19th century. These data are of particular interest since they cover part of the Napoleonic wars, for which large armies were first organized on the basis of national levies. For most of the period from 1801 to 1811, the

* Presented before the Vital Statistics Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

recorded births showed little variation from year to year, the range from the high to low during this period being only 5 per cent. There was, however, a decrease of 5 per cent in the single year from 1811 to 1812; this may perhaps be associated with the Napoleonic invasion of Russia. In 1814, there was a sharp increase in births, and for a short period the figures remained at a constant level. The war with Prussia in 1870 caused a moderate, but very temporary reduction in the birth rate, from 25.5 per 1,000 in 1870 to 22.9 in 1871, but there was an immediate recovery. Figures for Germany for those years also showed a drop, from 38.7 in 1870 to 34.5 in 1871; as in France, there was an immediate recovery after the war above the pre-war level.

In our own country, the Civil War provides the first opportunity to observe the effect of war upon the birth rate. Unfortunately, birth records on a national scale for that time are not available. Looking through the records for Massachusetts, it is found that the birth rate fell from a level of 29 per 1,000 in 1860 and 1861 to 25.9 in 1862; the decline continued throughout the war and immediately thereafter, reaching a low point of 23.2 in 1866. There was a sharp recovery to 26.2 per 1,000 in 1867.

The conflicts around the turn of the century, such as the Spanish-American War, the Boer War, and the Italo-Turkish conflict had little apparent effect upon the birth rates of the countries involved. On the other hand, the birth rate in at least one of the Balkan countries, Bulgaria, showed a marked decline during the series of conflicts that occurred there just before the outbreak of the first World War.

The World War of 1914-1918 is the first for which there is well documented evidence of the adverse effect of war upon the birth rate. For the war period as a whole, including 1919, the birth

rates were less than 60 per cent of the pre-war normal in Hungary; about 60 per cent in France, Germany, Belgium, and Bulgaria, and about 65 per cent in Italy and Austria. In England, the effect of the war upon the birth rate was not only much smaller but was relatively long delayed. There, the wartime average was as much as 80 per cent of that in the immediate pre-war period. It will be recalled that the English Army was recruited on a voluntary basis until 1916 and that even then her new troops had to undergo a period of training at home. Consequently, the decrease in that country was not severe until 1917. The birth rate for the United States was affected only slightly, partly because of the short period of our participation and partly because of the spurt in the marriage rate in anticipation of the draft for military service.

The population losses resulting from the first World War were recently summarized by Notestein and his associates in their notable book, *The Future Population of Europe and the Soviet Union*. For Europe exclusive of Russia, the total population losses due to the war, including civilian deaths in excess of normal, were estimated at 22,400,000. Birth deficits accounted for 12,600,000 of this total, or about double the military losses. To Soviet Russia alone the war and the revolution brought a deficit of nearly 10,000,000 births. In several countries the curtailment of births during the war period corresponded to the total number of births of two whole normal years.

It is of interest to note the trend of birth rates in the neutral countries during this period. In Holland and the Scandinavian countries birth rates were hardly affected, showing generally a continuation of the long-term downward trends. The Swiss birth rate, however, declined rather sharply.

Hardly less important than the immediate effects of the first World War

on birth rates were the longer-term effects. It is true that there was a post-war resurgence in birth rates in all the belligerent countries after the war. But this rise was related to the high marriage rates after demobilization and was purely temporary. Even so, the maximum birth rates in the immediate post-war years were usually below the pre-war average and in practically all countries the long-term downward trend already in evidence before the war was resumed. A considerable part of this later decline reflects the reduction in the number of potential fathers—the young men who were killed during the war or who were so badly maimed that they did not marry. Nearly three-fourths of the German soldiers killed during the war and well over half of the French losses were men under 30. Altogether, about one-fifth of all the men between 20 and 30 in the two countries were killed during the conflict. Thompson, using the 1927 birth rate as a basis, estimated, for Germany alone, the post-war deficit of births arising from deaths of young men during the war at $2\frac{1}{2}$ million, a figure roughly of the same order as the birth deficit during the war itself. Fortunately, our own losses during our short period of active participation constituted only a small proportion of our men of marriageable age.

The two decades between the great global conflicts have also witnessed bitter struggles. In this period, Japan began her cruel war against the Chinese, which has gone on for so many years now. No records exist which show how the birth rate of China has been affected. It is estimated that perhaps as many as 40,000,000 persons were forced to flee to inner China. In such circumstances, with many families broken in the course of their wanderings, the birth rate was bound to fall from the high level that is normal for the country. Japan's birth rate like-

wise has fallen appreciably, although probably not as fast as China's.

The bitter civil conflict in Spain brought a sharp reduction in the birth rate in that country. While the statistics are probably incomplete, they show a birth rate of only 16.2 in 1939, as compared with 24.1 in 1936.

This brings us to World War II. At the outbreak of this global conflict, France and Germany were more conscious of their population problems than most other countries of the world. In France, the long standing problem of depopulation gave rise, among other things, to a system of family allowances with the hope that this would have a beneficial effect upon the birth rate. Germany's program stemmed almost wholly from the accession of the Nazis to power. Her steps to increase the birth rate were much more positive than those of France and apparently produced better results. A large part of Germany's pre-war gains, however, may have resulted from the rise in employment due to her rearmament program, and from stern measures against abortion. Strongly mindful of her population policy, Germany, in opening the war, continued these pre-war measures with practically no modifications, and in addition gave suitably spaced furloughs for married soldiers in order to prevent a decline in her birth rate. Other less conventional methods were also encouraged with this end in view. An account in "Population Index" of October, 1942, based upon a study of monthly birth-rates for Germany early in the war showed that until after April, 1940, the rates for that country showed little adverse effect. The peak which fell in April, 1940, was associated with the high marriage rates prevailing during the early summer months of 1939. On the other hand, the sizable decrease in the birth rate in May and June of 1940 was associated with the mobilization of the

armed forces in the preceding August and September. Subsequent variations in the birth rate from month to month were traced to the large scale furloughs granted following the conquest of Poland, to the recall of troops for the offensive in western Europe during the spring of 1940, and to the period of relative freedom from hostilities in the summer following.

We can then understand why the birth rate of Germany did not recede much in 1940. Indeed, the rate for the year was actually somewhat above the immediate pre-war level. The subsequent exigencies of war have, however, outweighed any illusions that the German authorities may have entertained regarding the maintenance of the birth rate at a high level. From a figure 20 per 1,000 in 1940, the rate slumped to 14.9 in 1942, the latest year for which a figure is available. Thus, within two years, Germany's birth rate fell by 25 per cent. Figures for the large German cities for the first half of 1943 show a further decline and in all probability this has continued uninterrupted.

The record of many of the countries overrun by Germany is very disheartening. In the case of France, it is evident that as a deliberate measure of keeping her population down, Germany has kept captive for more than four years about two million prisoners of war, most of them young men who are in the prime of reproductive life. France's birth rate had already been lower than her death rate since 1935. In 1938, the birth rate for France was only 14.7 per 1,000. This was reduced to 13 in 1941, France's minimum for the present war, a figure which may be compared with a low of 9.5 in World War I. In 1942, on the other hand, the birth rate in France rose to 14.3, with a further rise to 16 in 1943; the figure is practically back at the level of the birth rate a decade ago. The experience of Belgium has been even worse

than for France. In Denmark and Holland, the birth rates, strange to say, have increased during the war, and in the former country, the 1943 rate was the highest in about fifteen years. Although there are no data regarding the other countries once occupied by Germany, a sharp reduction in birth rates has, undoubtedly, been suffered by Poland, Yugoslavia, and Greece.

Finland's birth rates have shown rather wide fluctuations during the war, apparently reflecting the changes in the military situation for that country. Italy, now our co-belligerent, showed a drop of about 14 per cent in her birth rate from 1940 to 1942.* With war being waged on her territory since 1943, the birth rate there is undoubtedly falling sharply.

England's experience has been very different from that of the other countries at war. With most of her men kept within the country, the birth rate in the first years of the war declined only slightly from the level in the previous years. Despite the many interruptions to normal family life which that country experienced, the birth rate fell by only 5 per cent from 1939 to its low point in 1941. A sharp recovery in 1942, amounting to more than 10 per cent, and a further increase through 1943 brought the English birth rate back to the level of 15 years ago. Figures for the urban population of England through 1944 indicate a gain of about 10 per cent over 1943. Should this reflect the situation for the country as a whole, the birth rate for 1944 will be the highest since 1925.

Still another pattern in the course of the birth rate was experienced in the United States. The slow recovery of the rate since 1933, when the country was at the depth of the depression, continued rather steadily through 1939. Beginning with 1940, the rate mounted rapidly, being accelerated first by the sharp increase in industrial activity and

then by the great upswing in marriages in anticipation of the service draft. In the few years from 1939 to 1943, the birth rate was increased by 27 per cent. It is estimated that the number of births in 1943 was 3,200,000, about one million more than during the bottom year of the depression. The 1943 birth rate corrected for under-registration, was about 24 per 1,000 population, and the highest in nearly twenty years.

With millions of young men single and married, serving abroad in our armed forces, an interruption in the upward sweep in the birth rate was, however, inevitable. In this connection, the following estimates as of February, 1944, are pertinent. About 40 per cent of the married women under 20 had husbands in the armed forces. At ages 20 to 24, the peak of the reproductive period in women, this figure was 29 per cent, and at 25 to 34, it was 13 per cent. With increasing numbers overseas, it is no wonder that the birth rate in the last quarter of 1943 fell below that of the year before. For the entire year 1944, births were about 6 per cent under the figure for 1943; the number of births in 1944 may not be far from three million.

It is interesting that neutral Switzerland and Sweden have both experienced sharp increases in birth rates during the present war, in contrast to the downward trend during World War I. War-time prosperity is probably a major factor in the recent increases.

The full price of the present war in terms of birth deficits will not be paid until long after the war, because most of the war dead are young men who were just beginning or were soon to take up family responsibilities. The post-war birth rate of Germany is likely to be most seriously affected because her losses of young men have been proportionately heavier than for any other belligerent. The Soviet Union, Poland, and some of the other eastern European

countries are also likely to suffer a considerable post-war diminution of births on this account. Some of the countries which were swiftly conquered and occupied by the Germans escaped severe military losses, and their prospects for maintaining their birth rates are therefore brighter. As for England and the United States, it is still too early to know how great the long-term effect on the birth rate will be, because the ultimate size of the war losses for the two countries, depending as it does on the further course of the war, cannot be estimated accurately as yet. We are only now at the stage where our losses are likely to reach serious proportions. But an extended war, even with relatively light casualties, would cause a slump in the birth rate because it would keep so many young men overseas and would also further delay marriages, a circumstance which itself has an adverse effect on the birth rate.

While all the present belligerents will experience a sharp increase in births within a year or two after demobilization, this is again likely to be only temporary. The western world faces a continuation of the long downward trend of birth rates for a considerable period unless there is a prolonged economic revival, combined with intelligent national programs for the encouragement of larger families and a fundamental change in popular attitudes in this regard. Such programs will be urgently needed in many countries not only to maintain birth rates above the wholly deficient pre-war rates, and to make up for any low rates that occurred during the war, but still more in order to make up for the children who would ordinarily have been born to the men killed and maimed in the war. We must not forget that in many countries the loss in births during and after the last war exceeded the numbers killed in action.

From this brief survey it is clear that the effect of war upon birth rates is not

uniform. Many factors enter into the situation, usually adverse, but not invariably so. There is, however, one lesson which may be learned from the experience in the last war. Countries whose birth rates were declining before that conflict continued to show declines

after the abnormal period induced by the war had passed. This condition will probably be repeated after this war, perhaps in accentuated form, if nations fail to establish positive population policies or to win popular support for them.

Fellowships in Health Education

Fellowships for graduate work in health education are being offered to qualified applicants by the U. S. Public Health Service, in coöperation with the National Foundation for Infantile Paralysis, Surgeon General Thomas Parran has announced. These fellowships for the collegiate fall term of 1945 are being awarded to meet present and future needs for trained health educators in schools, communities, and local, state, and federal health departments.

Men and women between the ages of 22 and 40 who are citizens of the United States and who hold a bachelor's degree from a recognized college or university may apply.

Fellowships will lead to a master's degree in public health. The 12 months' training period will consist of 9 months in graduate work at the University of North Carolina, Yale University, or the University of Michigan, and 3 months' field experience in community health education under supervision. Applicants must meet the requirements for admission to the universities named. Training in science, sociology, education, and psychology, plus experience working with people are desirable prerequisites.

The fellowships provide a stipend of \$100 a month for 12 months, full tui-

tion, and travel for field experience. Candidates must pay their travel to and from the university at the beginning and end of training.

"The existing shortage of trained health educators and the demand for expansion of health education activities indicated both in this country and abroad highlight the need for qualified personnel with a thorough understanding of both public health and education," the Surgeon General said.

Basil O'Connor, President of the National Foundation for Infantile Paralysis, pointed out that coördination of official and voluntary agencies on a community basis will make available the services of competent health educators whose aid will be invaluable in solving community health problems. He stressed the assistance to be given by such a group during an infantile paralysis outbreak in informing residents about the disease and the necessity for long continued aftercare of patients.

Fellowship application forms may be obtained from the Surgeon General, U. S. Public Health Service, Washington 14, D. C. Applications must be accompanied by a transcript of college credits and a small photograph, and must be in the office of the Surgeon General not later than June 1, 1945.

Recent Trend of the Birth Rate*

A. W. HEDRICH, Sc.D., F.A.P.H.A.

*Chief, Bureau of Vital Statistics, Maryland State Department of Health,
Baltimore, Md.*

THE increase in the birth rate in the last few years in the United States is apparently the greatest experienced since birth records began in this country. The increase is more noteworthy because it runs counter to the declining trend in birth rates which seems to have been in progress for at least 130 years. According to estimates of Whelpton and Thompson,¹ the birth rate among whites in the United States in 1810 was in excess of 54 per 1,000 population. Through the years the rate declined until in 1933, during the heart of the depression, the rate touched an all-time low of about 16.6 per 1,000 population—less than one-third of the rate for 1810. Many factors must have contributed to this long decline; migration to cities, increased cost of child rearing, restriction of child labor, desire for higher living and educational standards, improved social status of women, increased knowledge of birth control, later marriages, and lower marriage rates. It is important to keep these factors in mind in basing conclusions and predictions upon the recent increase in birth rates.

After 1933 the birth rate rose slowly and irregularly for a few years. Then, beginning about 1939, the rate rose more rapidly, going from 17.3 to 22.0 per 1,000 population in 1943. In about four years, therefore, the birth rate, which for so many years had been declining, rose by some 27 per cent!

* Presented before the Vital Statistics Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

THE MARRIAGE RATE

To some extent the recent increase in the birth rate seems attributable to the improved economic status of the population. Table 1 shows that during the depression the marriage rate came to its

TABLE 1
*Annual Per Capita National Income, and
Rates of Marriage and Birth, 1915-43*

| Year | Per Capita
National
Income * | Marriage
Rate per
1,000 Pop.† | Birth
Rate per
1,000 Pop.‡ |
|------|------------------------------------|-------------------------------------|----------------------------------|
| 1915 | \$378 | 10.0 | 25.0 |
| 1916 | 477 | 10.6 | 24.9 |
| 1917 | 539 | 11.1 | 24.5 |
| 1918 | 583 | 9.7 | 24.7 |
| 1919 | 649 | 11.0 | 22.4 |
| 1920 | 650 | 12.0 | 23.7 |
| 1921 | 479 | 10.7 | 24.2 |
| 1922 | 544 | 10.3 | 22.3 |
| 1923 | 624 | 11.0 | 22.1 |
| 1924 | 612 | 10.4 | 22.2 |
| 1925 | 641 | 10.3 | 21.3 |
| 1926 | 657 | 10.2 | 20.5 |
| 1927 | 644 | 10.1 | 20.5 |
| 1928 | 658 | 9.8 | 19.7 |
| 1929 | 686 | 10.1 | 18.8 |
| 1930 | 559 | 9.2 | 18.9 |
| 1931 | 439 | 8.6 | 18.0 |
| 1932 | 320 | 7.9 | 17.4 |
| 1933 | 337 | 8.7 | 16.6 |
| 1934 | 391 | 10.3 | 17.2 |
| 1935 | 438 | 10.4 | 16.9 |
| 1936 | 507 | 10.7 | 16.7 |
| 1937 | 555 | 11.2 | 17.1 |
| 1938 | 495 | 10.2 | 17.6 |
| 1939 | 541 | 10.5 | 17.3 |
| 1940 | 588 | 11.9 | 17.9 |
| 1941 | 727 | 12.6 | 18.9 |
| 1942 | 903 | 13.1 | 21.0 |
| 1943 | 1,054 | 11.8 | 22.0 ** |
| 1944 | 1,164 | 10.8 ** | 21.0 ** |

* Data from National Income Unit, Bureau of Foreign and Domestic Commerce.

† Press bulletin: Marriages in the United States: 1914 to 1943, Bureau of the Census, Series PM-1, No. 1 (July 4), 1944.

‡ *Vital Statistics Special Reports*, Bureau of the Census, 19, 1:5 (Dec. 23), 1943.

** Estimated from preliminary monthly data; 1944 estimates based on 11 months of reports.

minimum in the same year as did the per capita national income; namely, in 1932. The birth rate came to its minimum the next year. With the subsequent recovery of income, marriage and birth rates also rose.

Hauser² has pointed out that the marriage rate also showed appreciable increases (a) shortly after the introduction into Congress of the first Selective Service Bill, June, 1940; and (b) after passage of the bill in September, 1940. Figure 1 shows these marriage increases in the lower curve. The birth rate (upper curve) shows moderate increases following about ten months after these marriage increases. There was also (c) a small increase in the marriage rate a month after the Pearl Harbor attack, December 7, 1941. This increase is somewhat more important than would appear from the graph; for normally the marriage rates are relatively low at the year end.

The highest point in the birth curve came in October, 1942, about ten months after Pearl Harbor. Although it

is evident that a considerable portion of the increase in birth rate is attributable to the higher marriage rate, that clearly is not the only explanation, for, as will later be shown, the increase in second and third children indicates that the birth rate also rose in families already established.

Although the highest *annual* birth rate in recent years has been that for 1943, Figure 1 suggests that actually the trend of the monthly birth rates has been downward since about October, 1942. The decline in the marriage rates during 1944 to date* suggests that a continuation of the decline in birth rates is not improbable. As Dr. Dublin and others have pointed out, experience during previous wars suggests that this decline in birth rate will continue until after the return of the military forces from foreign shores.

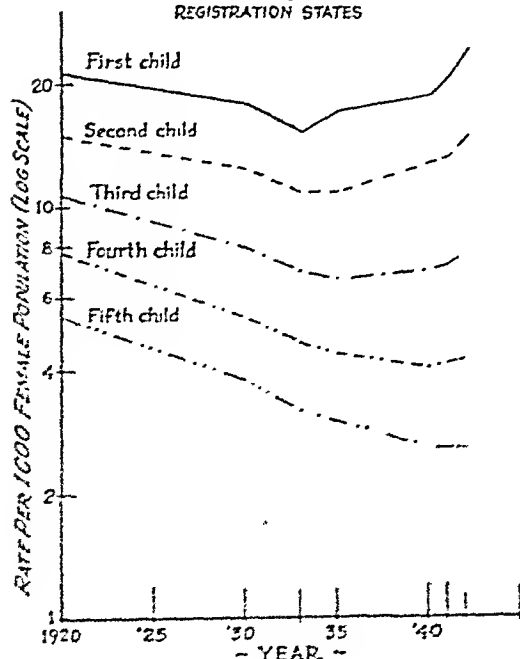
BIRTH RATE CHANGES IN DIFFERENT POPULATION GROUPS

A striking feature of the recent rise in birth rates has been the tendency for certain differences in birth rates in the population to diminish. This tendency of the birth rates to converge can be seen in certain classifications by geographic areas, and by color and economic status.

As to geographic changes: A map³ published by the Bureau of the Census shows that, from 1941 to 1942, increases in birth rate of 15 per cent or more were found only in the North and on the Pacific Coast; these are normally areas of low birth rates. On the other hand, increases of 5 per cent or less were observed mainly in the southern states which previously had the higher birth rates. Other data show that

FIGURE 2

BIRTH RATES BY BIRTH ORDER OF CHILD
1920-1942
REGISTRATION STATES



* To the end of 1943 the marriage data are based upon 16 states reporting to the Bureau of the Census. The 1944 monthly rates were estimated for states by calculating monthly ratios 1944/1943 for marriage data from 92 cities, and multiplying these ratios into the 1943 monthly marriage rates for the 16 states.

whereas in 1939 the birth rate of the New England states was only 79 per cent as large as the average of the southern states, in 1943 this ratio had increased to 92 per cent.

Urban-rural contrasts in Maryland birth rates appear to have vanished of late. In 1939, the Baltimore City resident birth rate was only about 75 per cent as large as that for the counties of Maryland; in 1943, however, the city rate actually exceeded that for the counties by 1 per cent! For the Registration Area birth rates for urban and rural portions are not available at this time; the numbers of births, however, suggest the tendency toward equalization that has been observed in Maryland.

Color differences in birth rates have also become smaller. The ratio of white to colored birth rates in the Registration Area increased from 83 per cent to 93 per cent in 1939-1942.

Turning to economic status: Data from New York and Baltimore suggest that for whites there has been somewhat of a loss in force to the adage that "the rich get rich and the poor get children." Jacobson,⁴ using data for New York City whites for the period 1929-1942, found that birth rate differences between high rental and low rental districts of the city decreased markedly

during the 13 year period. In 1929, the ratio of birth rates in high rental to low rental districts was 23.8/39.8, or 60 per cent. By 1942 this ratio had increased to 29.4/31.1 or 95 per cent. Although the white birth rates tended to converge during the entire 13 year period, the process was most rapid subsequent to about 1939.

Dr. W. Thurber Fales has kindly made unpublished data from Baltimore available, which indicate a similar convergence among the different economic classes of whites in Baltimore between 1938-1939 and 1942-1943; but among the colored the effect was the opposite. Table 2, which is based upon the Fales data, shows in column 2 that the districts of Baltimore with the lowest rentals (under \$15 per month) had in 1938-1939 a white birth rate of 15.3 per 1,000 population, which was about 60 per cent higher than the white rate of 9.6 in the districts with the highest rentals (over \$45 per month). Column 3 of the table shows that by 1942-1943 this excess of birth rate among the relatively poor whites had shrunk to about 15 per cent. This was because in the 4 year interval the birth rates in the more prosperous white districts were multiplied by as much as 2.22 as against only 1.60 or less in the poorer districts.

TABLE 2

Birth Rates per 1,000 Population, 1938-1939 and 1942-1943, in Districts of Specified Monthly Median Rentals. Baltimore, Md.

| Monthly Rental * | Whites | | | Colored | | |
|------------------|--------------------|-----------|-----------|--------------------|-----------|-----------|
| | Annual Birth Rates | | Ratio | Annual Birth Rates | | Ratio |
| | | | 1942-1943 | | | 1942-1943 |
| | 1938-1939 | 1942-1943 | 1938-1939 | 1938-1939 | 1942-1943 | 1938-1939 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Under \$15* | 15.3 | 24.5 | 1.60 | 19.6 | 32.9 | 1.68 |
| 15-19 | 16.9 | 24.2 | 1.43 | 24.0 | 33.7 | 1.41 |
| 20-24 | 15.8 | 23.0 | 1.45 | 22.9 | 33.1 | 1.44 |
| 25-29 | 14.0 | 22.2 | 1.58 | 13.6 | 19.1 | 1.39 |
| 30-34 | 12.4 | 21.7 | 1.75 | 14.6 | 19.0 | 1.30 |
| 35-44 | 12.2 | 22.3 | 1.83 | 14.2 | 19.0 | 1.33 |
| 45+ | 9.6 | 21.4 | 2.22 | 10.9 | 13.7 | 1.26 |

* Median contract or estimated monthly rental in group of census tracts.

Among the colored, however, the change was the reverse, in that during the 4 year period the divergence in birth rates between poor and prosperous districts increased. Column 7 shows that the factor of increase for the colored poor was as much as 1.68—slightly greater than for white poor; but for the prosperous among the colored the factor was as low as 1.26. No explanation for this unexpected result can be offered at this time.

AGE OF MOTHER AND BIRTH ORDER

It is common knowledge that for many years the number of children per family has been growing smaller and that children have been increasingly limited to the earlier years of married life.

Data for the Registration States⁵ indicate that from the end of World War I to about 1930 there was practically no decline in the birth rate for mothers aged 15-19. With increasing age of mother, however, the drop in birth rates became progressively more pronounced until at ages 40-44, the rate declined about one-third in the decade following the war. Since 1933

and especially since 1938 the birth rate has increased sharply for mothers of all ages up to about age 35. For the older ages there has been hardly more than a slowup in the previous rate of decline.

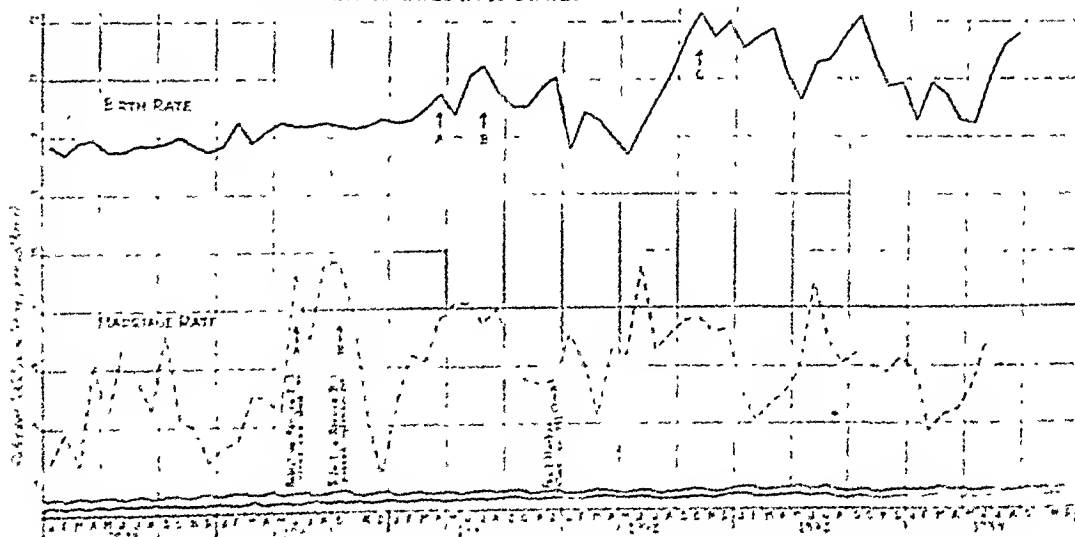
Figure 2* shows a related phenomenon. Prior to about 1933 the birth rate was clearly declining for all birth orders, the rate of drop being greatest for the higher birth orders (later children born). Since 1933, however, the birth rate for the first and second orders have increased about 50 per cent. Note from the graph that the 1942 birth rates for the first and second children were actually higher than the 1920. For the higher birth orders there has been progressively less change from the previous trends.

Some preliminary 1943 data furnished by Dr. Ruth Puffer of Tennessee suggests that an interesting change in birth order relationships may be in prospect during the next few years. In Tennessee the rate for the first birth order had al-

* In Figure 2, points were plotted only for 1920, 1930, 1933, and certain years thereafter indicated on the base line (page 322).

FIGURE 1

BIRTH RATES IN THE UNITED STATES AND MARRIAGE RATES IN 16 STATES



ready begun to decline in 1943. For the second birth order, however, the 1943 rate was higher than before. This outcome is perhaps not too surprising when one remembers that the first effect of a rise in the marriage rate is an increase in the number of first born; another year or two must elapse before the higher birth orders can be affected by the change in marriage rate.

SUMMARY

The birth rate, which has had a declining trend in this country for over a century, recently experienced a noteworthy increase. Starting with an alltime low of 16.6 per 1,000 population in 1933, the rate attained a peak of about 22.0 in 1943. Since 1939, when the increase became most rapid, there has been a rise of about 27 per cent in the rate.

Appreciable increases in the birth rate appeared approximately ten months after rises in the marriage rate which occurred at (1) the upturn in per capita income in 1933, initiating recovery from the industrial depression; (2) the introduction into Congress of the first Selective Service bill in June, 1940; (3) passage of the bill in September, 1940; and (4) the declaration of war following the Pearl Harbor attack, December 7, 1941.

The increase in birth rates has been heaviest in the North and Far West, in cities and among relatively prosperous whites. These groups normally have low birth rates. The effect, therefore,

has been to diminish geographic and social differences in fertility.

The increase in the birth rates has been most pronounced among the younger mothers and for the first and second children of the family. For these, recent birth rates have been the highest in more than twenty years.

The highest point to date in the monthly birth rate in the current movement was reached in October, 1942. A slight decline in the subsequent trend, the drop in 1944 marriages to date, and experience of World War I suggest that unless new forces intervene, a further decline in the birth rate is likely, continuing until the return of appreciable numbers of the military forces when, if history repeats itself, the birth rate may be expected again to increase, at least temporarily.

ACKNOWLEDGMENTS: In addition to persons mentioned in the text, the writer is indebted for assistance to Dr. H. L. Dunn and Dr. I. Moriyama of the Bureau of the Census, to Thomas Duffield and Marjorie Bellows of the New York City Department of Health, to Dr. Bessie Moses of Baltimore, and especially to Helen George of this Bureau.

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Effect of Increased Birth Rate on Future Population*

P. K. WHELPTON

*Scripps Foundation for Research in Population Problems, Miami University,
Oxford, Ohio*

THE extent to which the size and composition of the future population will be affected by an increase in the birth rate depends primarily on the amount and duration of the increase. To make my discussion of these matters specific rather than abstract, I will base it on recent experience in the United States. This is not unique; on the contrary in certain other countries the birth rate has been behaving much the same as here, and with much the same effect on future population.

The increase in the United States birth rate since 1940 has attracted much attention, for it has been large and rapid, unprecedented in our demographic history. The crude birth rate, i.e., births per 1,000 persons, was 19.3 in 1940, 20.3 in 1941, 22.5 in 1942, and 23.3 in 1943, rising 4 points in three years.† The most rapid rise

recorded previously was half this size, from 25.1 in 1919 to 27.1 in 1921.

Because of population growth the number of births has climbed even more rapidly than the birth rate, from 2,550,000 in 1940 to approximately 3,120,000 in 1943, up over 22 per cent, and reaching an all time high. Judging from the provisional data for the first eight months of 1944 there probably will be between 2,800,000 and 3,000,000 births in 1944, making it the fourth year in history to come close to the 3,000,000 mark.‡ Before 1942 the record was held by 1921, with approximately 2,956,000 births.

Some of the effects of this jump in the birth rate and the number of births have been obvious for many months. Gynecologists, supervisors of maternity wards, manufacturers of diapers and other infant items, and registrars and their assistants can testify wholeheartedly on this point. Other effects are casting their shadow, which can be seen by those who know where to look. Well informed grammar school principals already are thinking of how they are going to take care of a 22 per cent increase in the number of first graders from 1946 to 1949, of second graders from 1947 to 1950, and so on. Other principals are due to be surprised in three or four years. Looking farther ahead, it is obvious that the recent rise in the number of births will cause high school enrollment to jump from

* Presented before the Vital Statistics Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

† All figures for births and birth rates in this paper have been adjusted to allow for incomplete registration. The proportion of births registered was 92.5 per cent from December 1, 1939, to March 31, 1940, according to *Vital Statistics Special Reports*, Department of Commerce, Bureau of the Census, Vol. 17, No. 18. It is assumed to have been 93.0 per cent in 1941, 93.5 per cent in 1942, 94.0 per cent in 1943 and 94.5 per cent in 1944.

‡ Registered births in 1944 are estimated to be from 5 per cent to 7 per cent less numerous than in 1943, in accordance with data in *Monthly Vital Statistics Bulletin*, Department of Commerce, Bureau of the Census, Vol. 7, Nos. 6 and 8. (Later numbers of the *Bulletin* indicate that there were 4.7 per cent fewer births in 1944 than in 1943, or a total of approximately 2,970,000.)

1954 to 1958, and college enrollment from 1958 to 1962. Such increases in the number of children and youths undoubtedly will be welcomed by the manufacturers and distributors of roller skates, school supplies, and other items consumed by the younger portion of the population.

Other effects of the recent increase in births are less closely associated with age, hence will be spread out over a longer period and cannot be dated as exactly as the foregoing. From 1958 to 1962, however, there should be an increase in the number of young adults entering the labor market, which will tend to weaken it. Employers of young unskilled workers will have less difficulty than formerly in hiring as many as they wish. The number of marriages should rise from 1958 to 1967 or thereabouts, with a corresponding increase in the demand for housing, and a strengthening of the real estate market. Many years later (from 2005 to 2008, if 65 is the customary retirement age under an expanded social security system) the administrators of the system will have a 22 per cent increase in the number of persons retiring. This is by no means a complete list of the aftereffects to be expected because of the recent increase in the number of births. Many others will occur to those who think about the matter. Only one more need be mentioned here, namely, the increase in the number of marriages from 1958 to 1967 or thereabouts should be followed—with an appropriate lag—by an increase in the number of births, which will start another sequence of the events just mentioned.

The foregoing discussion deals with relatively elementary and obvious events to be expected as a result of the recent increase in the birth rate. Of more interest is a discussion of how much this increase has enlarged the present population, and how much it is likely to add to our numbers in the

future. These questions are much harder to answer precisely, partly because the preparation of an answer requires the setting up of a bench mark from which to measure the increase in the birth rate. Should this be the lowest rate of recent years? If so, 1933 is the obvious choice. Had the crude birth rate remained as it was in 1933 there would have been during the four years 1941–1944 a total of about 9,750,000 births instead of the 11,750,000 (more or less) which will occur, a difference of 2,000,000. Hence, if the 1933 rate is accepted as the standard from which to measure, the recent increase has added nearly 1,920,000 persons to the present population.

But is it correct to take as a standard the birth rate set by conceptions during the worst year of the depression? Demographers have known for many years that economic changes have an important influence on the birth rate, a worsening of business conditions tending to depress the birth rate, and an improvement to increase it, in each case with an appropriate lag.^{1, 2} Much, if not all, of the slow rise in the birth rate from 1933 to 1940 was merely the result of economic recovery. An examination of marriage statistics shows clearly that hundreds of thousands of marriages were postponed during 1930–1933, to be performed subsequently (often to another person, of course) as employment and earnings increased. This in itself influenced the birth rate trend. In addition, the worsening of the depression during 1930 to 1932 caused the postponement of hundreds of thousands of pregnancies by that large group of the population who plan the number and spacing of their children. Some of these pregnancies were put off forever by divorce, sterility, death, and other factors, but many occurred during 1938 and subsequent years.

In studying a series which fluctuates

around a trend line, as births and birth rates have done in the past, it is sound statistical procedure to measure an unusual situation by comparing it with what would be expected as the normal development. Had World War II not started in 1939, and had this nation not entered it in December, 1941, the best guess may be that economic recovery and the rise in the birth rate would have continued to date at the slow pace of 1933 to 1940. If so, the crude birth rate in 1943 would have been approximately 19.3 instead of 23.3, and the number of births during the 4 years 1941-1944 would have been about 10,300,000 instead of 11,750,000. On this basis the recent jump in the birth rate has meant approximately 1,450,000 extra births, or an addition of about 1,390,000 to the present population. This is a large number, but relatively it is small, barely 1.0 per cent of the total population.

Unfortunately for those wanting rapid population growth, another important factor must be considered. In determining the *long-time* as distinguished from the *short-time* influence of an unusual departure from a trend, it is necessary to determine whether there is likely to be in the future an unusual departure in the opposite direction, and if so, how large. Specifically, how much of the wartime increase of between 1,450,000 and 2,000,000 births during 1941-1944 consists of births which ordinarily would have occurred in subsequent years, but were merely pushed ahead because of the war? Obviously no one knows exactly. The best that can be done is to analyze relevant information, and develop an informed opinion.

An examination of marriage statistics throws some light on the matter. During the 30 years from 1910 to 1939 the number of marriages per 1,000 women 17 to 29 years of age averaged 88.5 and showed no significant long-time trend.³

During 19 of these 30 years it was between 84.5 and 92.5; in the other 11 years it was reduced or increased beyond these limits by the events of World War I (1917-1921), or by the worsening of, or the recovery from, the last depression (1930-1933 and 1937). Using the 30 year average as a normal rate, the normal number of marriages for any year can be computed. Subtracting this from the actual number gives the estimated surplus or deficit.

During the first four years of the depression a large deficit in marriages was accumulated—nearly 800,000, or an 8 months' quota. A beginning in reducing the deficit was made in 1934. By the end of 1940 it was almost down to 300,000, and a year later it was gone. In 1942 the upward trend brought the marriage rate to a record high (114.7), 10 points above the previous high in 1920, and 26 points above the 30 year average. As a consequence, the actual number of marriages exceeded the normal number by about 400,000. During 1943 the rate was lower, nevertheless there was a current surplus of nearly 210,000, which brought the cumulative surplus at the beginning of 1944 to over 500,000. Had the war not occurred, it is almost certain that there would have been from 400,000 to 600,000 fewer marriages in the United States during 1940-1943, and that a very large proportion of these marriages would have occurred later on in the decade. As it is, a slump in the marriage rate is to be expected in the future. Since an important proportion of couples have their first child within a year or two after marriage, the fluctuations in the marriage rate furnish an excellent reason for thinking that some hundreds of thousands of the births which occurred during 1941-1944 would have occurred a few years later if there had been no World War II. A more exact estimate of the extent to which the recent rise in the birth

rate is merely a borrowing against the future can be obtained by utilizing birth rates by age of mother and ordinal number of child, and census data on the proportion of women in certain age groups who had borne none, one, and other numbers of children. According to the 1940 census, among the white ever married women who were 50 years old (i.e., who had recently completed the childbearing period), and for whom a report was obtained as to number of children ever born, 85.1 per cent had borne one or more children.* Only a negligible number of the 9.0 per cent of the white women aged 50 who were spinsters in 1940 had borne a child, not because illegitimacy was negligible in the cohort, but because single mothers usually marry subsequently. Combining these proportions, 77.5 per cent of all white women aged 50 in 1940 had borne one or more children, and 22.5 per cent had not borne any. The corresponding figures for 1910 are 82.6 per cent and 17.4 per cent.

It must be remembered that most of the fertile women aged 50 in 1940 bore their first child when they were between 15 and 30 years of age, that is, between 1905 and 1920, with 1912 as the modal year. Since that time the trend of the birth rate has been downward, chiefly because of a decrease in the average number of children per family, but to some extent because of an increase in the proportion of women unable or unwilling to have a child. Consequently, among the women who will reach age 50 from 1965 to 1980 and who have been having most of the 1944 first births, the proportion bearing no children should be somewhat less than it was for women aged 50 in 1940. If the proportion is estimated by extrapolating

at a slightly decreasing rate the trend between the censuses of 1910 and 1940, the figure for women aged 50 in 1958 is 74.8 per cent, and for those aged 50 in 1972 is 73.2 per cent. Since the modal age at birth of first child is 22, these percentages represent approximately the current situation for 1930 and 1944, respectively.

If birth rates by age of mother and order of birth of child did not vary from year to year, the percentage of women living to age 50 who would bear one or more children could be computed correctly from these rates themselves. The process would consist merely in dividing the number of first births to women aged 15-19 by the number of women of that age, multiplying by 5, repeating the operations for succeeding 5 year age periods, adding the quotients, and multiplying by 100. The underlying assumption is that the childbearing experience of the women in the series of cohorts during a given year is equivalent to the experience of the women in a single cohort over a series of years.* But because there are fluctuations in first birth rates, only those for a normal year will give the correct percentage. It is the converse of this statement which is useful here, namely, that comparing the percentage thus computed for any year with a normal percentage will show the extent to which the first birth rates of the year in question are abnormal.

If 1930 first birth rates by age of mother had remained in effect indefinitely, 75.8 per cent of the white women living to age 50 would have borne one or more children. This is very close to the normal percentage for 1930 (74.8 per cent) estimated from the intercensal trend. As the depression worsened the age-specific first birth rates fell far below the 1930 figure,

* This is an average of the percentages shown for the age periods 45-49 and 50-54 in *Differential Fertility, 1940 and 1910*. Dept. of Commerce, Bureau of the Census, 1943, p. 7.

* A second, but minor, assumption is that women dying before age 50 have the same birth rate at each age of life as women living to age 50 or older.

hitting bottom in 1933. If they had continued at that point for a generation, only 64.8 per cent of the white women would have had one or more children. The 1933 percentage was 10 points, or nearly one-seventh, below the estimated normal, and the deficit in the first births was about 95,000. After 1933 the first birth rates rose, but did not reach the estimated normal until 1937. At the beginning of that year the accumulated deficit in first births amounted to nearly 220,000. With somewhat higher first birth rates during 1938-1940, however, the deficit was wiped out by about the middle of 1940.

It was after 1940 that the first birth rates really jumped, up nearly 11 per cent in 1941, and nearly another 19 per cent in 1942. In a cohort having the 1941 rates 91.8 per cent of the women living to age 50 would bear one or more children compared with a normal of about 73.5 per cent. With 1942 came the impossible. In a cohort having 1942 age-specific rates for first births, 109 of each 100 women living through the childbearing period would have at least one child. Obviously the age-specific first birth rates could not remain so high for any length of time. Furthermore, they could achieve such high marks temporarily only if they had been abnormally low during preceding years, or would be abnormally low during following years. Because the deficit in first births accumulated during the depression was made up by about the middle of 1940, the surplus piled up since then must be at the expense of coming years. In 1941 it amounted to approximately 188,000 first births, in 1942 to approximately 365,000, and in 1943 to approximately 450,000. By the end of 1944 the advance drawing on future years will total in the neighborhood of 1,420,000 first births, or the number which would occur normally in a little less than two years.*

It may be argued that the war has caused a substantial rise above what otherwise would have been the normal proportion of white women bearing one or more children among those living to age 50, hence that the first births of future years have not been drawn upon to the extent just indicated. Such a rise could come about through a decrease in the proportion of women remaining single until 50 or older, a decrease in the proportion of married women bearing no child, or an increase in childbearing among women remaining single to age 50. The latter appears unimportant, not because illegitimacy has failed to increase recently, but because most of the women bearing illegitimate children marry before age 50. Consequently attention can be concentrated on the other two variables.

In 1940, 9.0 per cent of the white women aged 50 had not been married. In prior censuses back to 1910 the percentage varied between 8.9 and 10.0, and under normal conditions would be expected to continue within these limits. The unusual conditions accompanying World War II undoubtedly have caused some women to marry who would never have done so otherwise. In view of the lack of variation in the past, however, it would be surprising if the proportion who will remain single until age 50 has been reduced by more than 10 per cent among white women now between 15 and 50. Such a reduction would mean that when these

* The number of births in a given year per 100 births in the preceding year, used in these and subsequent estimates, is as follows:

| | 1942 | 1943 | 1944 |
|---------------------|-------|-------|------|
| All births | 111.8 | 103.9 | 94 |
| White births | 112.8 | 104.2 | 95 |
| First white births | 118.8 | 107.2 | 93 |
| Second white births | 112.7 | 105.9 | 96 |

The ratios for 1942 and that for all births in 1943 are computed from official reports. The ratio for all births in 1944 is obtained as explained in the first footnote. The remaining ratios are estimated from the foregoing. The ratio for white first births is expected to decline more rapidly than the other ratios after 1942 because it rose more rapidly prior to 1942.

women reach age 50, 8.1 per cent will be spinsters and 91.9 per cent will have been married.

In 1940, 14.9 per cent of the ever married white women aged 50 had not borne a child alive. In 1910 (the only other census for which such information is available) the percentage was about 9.3. Some of these women were childless because their marriage was broken by death or divorce, others because of sterility, and others because they did not want children. Information regarding the relative importance of these three types is fragmentary. By far the most representative group for which data are available is a typical sample of New York City white wives under 50 and married 10 years or more, reported by Kiser.⁴ A little over 9 per cent of these women had never borne a child, and about 7 per cent had never been pregnant. Nearly 78 per cent of the latter had done nothing since marriage to prevent conception, and nearly 9 per cent had practised contraception only part of the time. In other words, between 5.4 and 6.1 per cent of all the women had not been able to conceive, and over 2.0 per cent had conceived but had not been able to bear a child alive. If these New York City women are typical of ever married women elsewhere in the United States with respect to the incidence of sterility and pregnancy wastage, the proportion of ever married women bearing no children could be reduced in theory from 14.9 per cent, the 1940 figure, to about 8.0 per cent. This is a drop of nearly 50 per cent. But since some wives prefer to be childless, and others lose their husbands by death or divorce before they are ready to start childbearing, a drop of 40 per cent seems a reasonable maximum. On this basis, 91.1 per cent of the women reaching age 50 would bear one or more children, about the same proportion as that shown by the 1910 Census.

If the proportion of women remaining single up to age 50 were to be reduced by 10 per cent, and the proportion childless among those marrying reduced by 40 per cent, the proportion bearing one or more children would be raised to 83.7 per cent. Assuming that such changes took effect at the beginning of 1941, the boom in first births will have mortgaged the future by nearly 1,000,000 by the end of 1944. This figure, and that of 1,420,000 obtained earlier by continuing past trends, represent probable upper and lower limits for the white population. Allowing for corresponding changes in colored first births (which occurred on a smaller relative scale) gives an estimate for the entire nation of between 1,050,000 and 1,500,000 first births moved ahead. In my opinion the advance drawing on the future will be found to come much closer to the larger than the smaller figure.

Prosperity and the war have also brought a sharp rise in the age-specific rates for second births to white women, averaging nearly 5 per cent from 1940 to 1941, over 12 per cent from 1941 to 1942, and probably 5 to 7 per cent from 1942 to 1943. In view of such changes it is desirable to determine whether the second births of future years have been mortgaged as well as the first births. The 1910 Census shows that 73.6 per cent of the white women aged 50 had born a second child. By 1940 the proportion had declined to 62.7 per cent. Since most second births occur to women aged 20-34, most of the women aged 50 in 1940 had borne their second child between 1910 and 1925, with 1914 as the modal year. In view of the downward trend of the rate for second births between these years and 1940, a normal percentage for women in the cohorts having second births in 1944 would be smaller. Extrapolating the trend between the two censuses but at a slightly declining rate, gives 57.6 per

cent as a normal for 1930, and 53.2 per cent for 1944. From 1930 to 1939 the second birth rate was below normal in every year, and by the end of 1939 the accumulated deficit amounted to about 470,000 second births. It was reduced slowly during 1940 and 1941, rapidly thereafter, and probably disappeared in the latter part of 1944. In short, if this concept of normal is correct, by the end of 1944 there will have been an advance drawing on the future of nearly 65,000 second births.

It is easily possible that the long-time downward trend of age-specific rates for second births has been less rapid than was assumed above. Furthermore, it is easily possible that the recent rise represents a real shift of women from the one-child to the two-child category. According to the normal percentages for 1944 which were used above, 9.0 per cent of the women living to age 50 would be single, 17.8 per cent would not have borne a child, and 19.9 per cent would have borne only one child. Stated differently, only 72.8 per cent of the women bearing one or more children would have borne two or more. Among women aged 50 in 1940, however, the corresponding figure was 80.9 per cent. If the decline was only seven-eighths as large as estimated above, or if a little less than one-third of it had been regained as of 1941-1944, there would have been no mortgaging of future second births. It is certain, therefore, that the wartime rise in the birth rate has not drawn heavily on the second births of future years, and it is barely possible that these births have not been mortgaged at all.

The recent rise of the age-specific rates for third births has been much less (both absolutely and relatively) than that for first or second births, and has carried them little, if any, above the 1930 figures. Consequently, there is no need to analyze third births in the foregoing manner. The rates for

fourth births have risen still less, those for fifth births had not risen at all up to 1942, and those for eighth and higher order births have continued to decline, and in 1942 averaged about 45 per cent below the 1930 figures.

Summing up the material just presented, because of the wartime rise in the crude birth rate, the total number of births during 1941 to 1944 will be about 2,000,000 above the number that would have occurred if the 1933 rate had remained in effect, and 1,450,000 above the number that would have occurred if the rate had followed the 1933-1940 trend. This will add between 1,920,000 and 1,390,000 persons to the population as of December 31, 1944. An intermediate estimate of 1,700,000 births and 1,630,000 persons probably is more accurate than either extreme. However, between 1,050,000 and 1,500,000 of the births during 1941-1944 are first births which would have occurred during 1945 to 1955 if it had not been for the war. In my opinion 1,350,000 is a conservative medium figure. Deducting 1,350,000 from 1,700,000 leaves 350,000 as the extra births which are due to the wartime rise of the birth rate. These births will increase the 1955 population 10 years of age or older by about 335,000, or by less than one-third of 1 per cent. Even if one takes the high estimate for the wartime increase of births during 1941-1944, viz., 2,000,000, and the low estimate for the number of first births merely moved ahead, viz., 1,050,000, the 1955 population 10 years of age or older will be increased by only about 910,000, or less than 1 per cent. As explained currently in the discussion, however, this high estimate is no more probable than the corresponding low estimate based on the opposite extremes, which shows that first and second births moved ahead exceed the entire increase in births during 1941-1944, hence that this increase will not add at all to the

number of persons living 10 years from now.

If the size of the future population is to be increased to any great extent by the recent rise of the crude birth rate, this rate must remain at or above the 1943 figure. It cannot do so unless the decline of the rates for first births which is certain to come in the next few years is offset by increases of the rates for second, third, and higher order births. In other words, there must be a substantial increase in the average number of children per couple as well as a decrease in the proportion of couples who are childless. No one can say with assurance that such changes will, or will not, occur. My own opinion is that the rates for second, third, and higher order births will not rise sufficiently, hence that the crude birth rate will fall. The reasons for this opinion have been given in detail elsewhere⁵; I will merely summarize them in two sentences. The average size of planned families has been substantially smaller than that of unplanned families in the past and will be smaller in the future, though perhaps in lesser degree. Any tendency for the average size of planned families to increase in the future will be more than offset by the increase in the relative frequency of planned families which will result from the continuing diffusion through the population of information about effective methods of contraception.

If the opinion just outlined is correct, may I point out one final series of effects which the wartime rise of the crude birth rate will have on the future popu-

lation. By moving approximately 1,350,000 births ahead a few years, it will cause a large drop in the number of births some time between 1944 and 1950 to 1955. Corresponding declines will occur six years later in the number of first graders, and afterwards—with an appropriate lag—in students entering high school and college, in workers entering the labor market, in couples marrying and setting up their own home, and in all the other activities associated with certain ages. In short, the war has caused the birth rate to fluctuate sharply but temporarily above its trend, and soon will cause it to fluctuate almost as much below its trend. These fluctuations have already introduced certain significant irregularities into the age composition of the population, and will soon introduce others but in the opposite direction. Their effects will be evident for many decades. The size of the future population, however, has not been and will not be, affected appreciably.

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April, 1945

Nutrition and Its Relationship to the Complications of Pregnancy and the Survival of the Infant*

BERTHA S. BURKE

Associate in Nutrition, Department of Maternal and Child Health, Harvard School of Public Health, Boston, Mass.

INCREASING awareness of the possible importance of nutrition during pregnancy to both mother and fetus has stimulated considerable interest in this field. In the last few years several prenatal studies on large numbers of women have been carried out which have included evaluation of their diets during pregnancy.

The first report of this type to gain widespread attention was the Toronto study of Ebbs, Tisdall, and their coworkers.^{1, 2, 3} A group of 120 women on poor diets and low incomes were studied during the last half of pregnancy as controls for 90 women from the same income level and on equally poor diets who were supplied with supplementary rations of milk, cheese, oranges, tomatoes, wheat germ, and vitamin D capsules, and 170 women with fairly adequate incomes who were instructed in the type of diet considered desirable for pregnancy. The incidence of miscarriages, premature births, stillbirths, and deaths in early infancy was significantly lower in the groups on supplemented and good diets, and these women also enjoyed better health throughout pregnancy, had fewer complications, and proved to be better ob-

stetrical risks than those left on poor diets. There was also a marked increase in the incidence of minor and major diseases in the infants born of mothers in the poor diet group. In a large proportion of the cases one could tell the diet group of the mother by the appearance of her baby at 6 months of age.

Williams and Fralin⁴ studied the nutrition of 514 women in relation to the course of their pregnancies, the puerperium, and the condition of their infants at birth. Their data seemed to show no relationships between the diet during pregnancy and the complications of pregnancy (except a relationship between vitamin B₁ and a history of nausea and vomiting in early pregnancy). No relationship was found with the puerperium or with the incidence of stillbirths, premature births, or neonatal deaths. Apparently a nutrition intake for only one 7 day period was used as representative of the diet during pregnancy.

The People's League of Health of England⁵ investigated the effect of the nutrition of 5,022 pregnant women upon maternal and infant morbidity and mortality. Supplementary minerals and vitamins were given to one-half of the women studied. This supplementary feeding appeared to reduce the incidence of toxemia approximately 30

* Presented at a Joint Session of the School Health, Maternal and Child Health, and Food and Nutrition Sections of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

per cent. The reduction in the number of premature births in the supplemented group was statistically significant. No other significant relationships were found.

Balfour⁶ reports another study, recently made in England and Wales, in which 11,618 pregnant women chosen from the lowest income groups were fed a supplement of marmite or other yeast extract sufficient to furnish 240 I.U. of thiamin daily, or a proprietary preparation which furnished a rich supply of vitamins A and D, as well as calcium, phosphorus, and iron. Their controls were 8,095 pregnant women from the same area. A study of any differences in the two groups made it seem fair to assume that any favorable results found in the fed group were due to the food supplements. The supplementary feeding of marmite or a similar yeast extract resulted in a statistically significant reduction in the number of stillbirths and in the neonatal mortality rate. There was also a reduction, but not significant, in the infant mortality rate in the group fed the supplement rich in vitamins A and D and in minerals. With either supplement there was also a slight but not statistically significant reduction in the incidence of toxemia and in the maternal mortality rate. Balfour states that, owing to the large number of cases studied and deaths observed, the differences in stillbirth rates and neonatal mortalities are significant beyond any reasonable doubt.

Dieckmann, Adair, *et al.*⁷ have studied a group of 553 pregnant women to determine if additions of calcium, phosphorus, iron, or vitamins A and D to the diet had any beneficial effects on the course of pregnancy or insured a higher incidence of normal infants. They concluded that "a study of the effect of the additions to the diet on the various complications of pregnancy showed some differences, but no con-

clusions could be drawn. No significant effects were noted on the fetus that could be attributed to diet."

As a part of the research program on the growth and development of the well child undertaken by the Department of Maternal and Child Health of the Harvard School of Public Health, we^{8,9} have made a study of 216 women and their infants in an attempt to clarify further the influence of diet during pregnancy upon fetal growth and development as well as upon the course of pregnancy, labor, delivery, and the puerperium. We obtained detailed nutrition histories at regular intervals during pregnancy, supplemented by records of food intake which the women kept.

The diets were evaluated in relation to a set of nutritional standards which approximate those later recommended by the National Research Council. A statistically significant relationship was found between the diet of the mother during pregnancy and the condition of her infant at birth. In the 216 cases studied every stillborn infant, every infant who died within a few days of birth except one, the majority of infants with marked congenital defects, all premature and all "functionally immature" infants were born to mothers whose diets were very inadequate. In somewhat greater detail, in the 31 cases in which the mother's diet was "good" or "excellent," 42 per cent of the infants were "superior," that is, they had no physical count of any kind against them either at birth or within the first two weeks of life, while in the group of 149 mothers whose diets were considered "fair" only 6 per cent of the infants were "superior," and in the group of 36 infants whose mother's diets were "poor to very poor" only one infant fell into this "superior" classification.

If we consider the infants with one, occasionally two, minor physical counts

against them who were rated in "good" physical condition, we find that in the "good" or "excellent" diet group 52 per cent of the infants, in the "fair" diet group 44.5 per cent of the infants, and in the "poor to very poor" diet group only 5 per cent of the infants were in "good" physical condition. In the case of infants considered to be in the "poorest" physical condition (i.e., were stillborn, died within a few days of birth, had marked congenital defects, were premature, or were termed "functionally immature") it was found that 67 per cent of the infants whose mothers' diets were rated "poor to very poor" fell into this classification, while only 5 per cent of the infants of the "fair" diet group, and 3 per cent of the infants in the "good or excellent" diet group were in this classification.

The average birth weight of the infants whose mothers' diets were rated "good or excellent" was 8 lb., 8 oz., that of infants born to the women in the "fair" diet group was 7 lb., 7 oz., and that of infants born to women in the "poor to very poor" diet group was 5 lb., 13 oz. The average birth length of the infants in the "good or excellent" prenatal diet group was 51.8 cm., 50 cm. in the "fair" diet group, and 47.2 cm. for the infants whose mothers' diets were rated "poor to very poor."

A statistically significant relationship was also found to exist between the prenatal diet and the course of pregnancy; this relationship was not as marked as that existing between the mother's dietary rating during pregnancy and the condition of the infant at birth. Sixty-eight per cent of the women having "good or excellent" diets during pregnancy experienced a normal course, while only 42 per cent of the women with "poor to very poor" diets had a normal pregnancy. These findings suggest that the fetus may suffer to a greater degree and more

frequently than the mother from inadequate maternal diet. In other words, the fetus may be parasitic upon the mother only to a certain extent, determined by the mother's own nutritional state at the time she enters pregnancy and by the quality and quantity of her diet thereafter.

Warkany,¹⁰ whose recent work on animals has contributed so much to our realization of the part which maternal dietary deficiency may play in congenital malformations, suggests the following intriguing explanation for the observed maternal-fetal relationship: "The stores of the maternal tissues act as 'buffers' which prevent deprivation of the developing embryo as long as possible. In fact, it was assumed until recently that these maternal stores either protect the offspring completely, thus resulting in the delivery of normal young, or that in case of extreme dietary deficiency the embryos die *in utero*. Although there is some truth in this 'all or none' theory it is not entirely correct. Between these two extremes there exists a narrow range in which maternal nutritional deficiency may result in arrest of the embryo's development without causing death. In this case congenitally deformed offspring may be the result."

In our study no woman whose diet was rated "good" or "excellent" had toxemia, while an 8 per cent incidence occurred among women whose diets were considered "fair," and among the women in the poorest diet group there was a 44 per cent incidence of toxemia. No statistically significant relationship was found between the prenatal diet and the duration of labor. However, there were many more difficult types of delivery in the "poor to very poor" diet group despite the fact that these infants averaged almost 3 lb. lighter in weight at birth than the infants of mothers whose diets were "good" or "excellent." While there seemed to be a

tendency for a relationship to exist between prenatal nutrition and the occurrence of major complications in the postpartum period, certainly there was no clearly defined relationship such as was shown with the complications of pregnancy.

Up to the present time it has been generally accepted that the weight of the new-born infant is not materially affected by the diet of the mother during pregnancy unless it is extremely deficient or possibly excessive in calories. The average weight gain for the series of women whom we studied was 24.6 lb. We found that the underweight woman who gained approximately the same or more than the normal or overweight woman during pregnancy gained more weight herself in relation to her preconceptional weight and gave birth to a smaller infant. The very overweight woman consuming inadequate calories lost weight herself but had a larger baby than the normal or underweight woman with adequate calories. While these data have not yet been published in detail, it is possible to state that here again is evidence suggesting that the fetus is parasitic upon the mother only to a degree, and that, if a woman enters pregnancy below her ideal normal weight, attention should be given to this fact and she should be allowed to gain about 24 lb. above her ideal weight, otherwise her own body tissues tend to utilize food at the expense of her unborn child.

Arnell, *et al.*¹¹ have emphasized the importance of a diet well supplied with protein during pregnancy. In studying a group of 225 women in the New Orleans area they found lower average hemoglobin and serum protein levels, a higher incidence of preëclampsia, a strikingly higher incidence of edema, increased maternal morbidity, and increased fetal mortality among the cases on diets poor in protein. Although these trends were found, no definite conclusions were drawn. A study of

their work illustrates the apparent difficulty in human studies of proving conclusively that a given effect is due to a specific nutrient.

While we¹² found a significant relationship between the general prenatal dietary rating and the incidence of toxemia, we found no significant relationship with protein alone. When protein was low in the diet, many other factors were often low also. Our study also revealed a very significant relationship between the protein content of the mother's diet during pregnancy and the birth length of her infant. There was a somewhat less striking but still significant relationship with birth weight. These relationships are of such a magnitude that when the cases are sorted according to the number of grams of protein in the mother's diet, they are observed with every 10 gm. difference in protein. For practical purposes this study indicates that less than 75 gm. of protein daily during the latter part of pregnancy results in an infant who will tend to be short, light in weight, and likely to receive a low pediatric rating. It is impossible to prove conclusively that protein alone is the significant factor, but from a practical standpoint it makes little difference, for if the diet contains the protein-rich foods it is probable that any other factors of importance in these respects are supplied also.

The most significant finding of the majority of the recent studies is a markedly lowered incidence of stillbirths, premature births, and early neonatal deaths, thus promising with improved maternal nutrition healthier babies with fewer physical handicaps. Greater attention to the nutrition of the pregnant woman should also result in lowered maternal morbidity and mortality, due to the better health of the mother during pregnancy and to the lessened incidence of complications, especially toxemia.

If the results of these studies warrant implications of such great public health importance, what can those of us who are especially interested in problems of public health do toward the accomplishment of these goals?

First of all, effective and practical education in the importance of nutrition during pregnancy and the ways in which the specific requirements for the nutritional essentials are to be met in the simple everyday diet of each case should be a routine part of prenatal care. In the long-range program the amount of nutrition education, both theoretical and practical, which the medical and nursing students receive should be increased. Nutrition should be introduced into the general educational program, so that the young married woman understands the increased nutritional demands of pregnancy and has already as the result of proper health education established normal food habits which have become a part of her daily life.

The best public health approach to the education of pregnant women in the importance of nutrition both to themselves and to their unborn infants, and the offering of practical advice on diet during pregnancy would be to include one or more suitably trained nutritionists among the personnel required to staff prenatal clinics. These nutritionists would cooperate with the clinic obstetricians to see that, unless there are real medical contraindications, the pregnant woman will be able to include in her diet the food necessary to meet her increased requirements, without undue gain in weight.

The time has come when there should be a clear realization by the obstetrician or general practitioner handling prenatal cases of his responsibility in regard to the diets of the pregnant women in his care. In private practice the obstetrician would add materially to the benefits of his prenatal care if such

care included detailed practical dietary advice. He might handle in the routine prenatal visits those nutritional cases which presented no special dietary problems and refer his more difficult nutritional cases to a suitably trained nutritionist whose services were obtained on a consultation or special service basis. The general practitioner who wishes to offer practical dietary help to his prenatal cases would find the nutritionists employed by departments of health able to offer valuable practical nutritional assistance to his patients.

Bethell¹³ says: "The prevalence of suboptimal nutrition, as measured by present standards and the degree of improvement after dietary instruction testify to the value of nutritional evaluation and therapy as a part of prenatal care for the population at large as well as for the distinctly underprivileged in large cities." Where outpatient food clinic facilities or other means of nutrition consultation are available, such services as a part of standard prenatal care could be provided at a cost which would seem a moderate price to pay for increased maternal and infant health and for lowering fetal and infant mortality rates.

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DISCUSSION

HAROLD C. STUART, M.D., F.A.P.H.A.

Harvard University, Boston, Mass.

I AM sorry that Dr. Kirkwood cannot be present to discuss this paper himself because he is far better fitted to do so from the obstetrical point of view than I am, and this is essentially an obstetrical problem. It is, however, of great interest to the pediatrician, the health officer, especially in connection with health education, and the nutritionist.

Dr. Kirkwood has read this paper and has asked me to emphasize the importance of certain points. I will, therefore, endeavor to make my discussion cover his thoughts as well as my own.

First let me emphasize what Mrs. Burke has pointed out that, although the accumulated evidence respecting the relationships between maternal nutrition and the condition of the infant at birth is very impressive, few and very guarded conclusions are justified as to the nature of these relationships. For example, the studies of Warkany and others on animals add weight to our findings in humans that a high incidence of congenital defects in infants is in some way associated with inadequate maternal diet. A close study of our cases, however, shows that in some at least genetic as well as other parental health factors were involved. It may

be that a genetic factor, predisposing to anomalies in a given tissue or system, is present in many fertilized ova, but that whether or not defects actually develop is determined by the chemical constituents of the fluids constantly bathing the embryonic tissues. These chemical concentrations are most certainly influenced by the tissue stores and circulating levels of nutrients, and hence by the diet of the mother. They may also be influenced by digestive and metabolic disturbances or by other disease processes on the part of the mother or by placental abnormalities. It appears that any one of a number of nutrient substances may be involved. These are at present matters of speculation, and the practical public health worker who believes in keeping his feet on the ground will await the results of further investigations before drawing conclusions about them.

The significant and practical conclusion to be drawn from the studies described by Mrs. Burke is that a good diet during pregnancy is far more important to the health of the offspring than has previously been recognized. The old idea that the fetus is a true parasite certainly has to be modified, although the fetus probably is parasitic under most circumstances to a con-

siderable extent. It appears that the baby may suffer far more quickly and with less maternal disturbance than we had previously appreciated when the mother is undernourished. Since we cannot predict what the ill effects of any given deficiency will be, the objective is clear that we avoid all possible deficiencies.

Dr. Kirkwood has asked that I stress the point that preconceptional nutrition is also important and calls for consideration in public health planning. In a number of the cases in our series which turned out unfortunately from the standpoint of the infant, not only was the diet faulty during pregnancy, but it had been chronically poor prior to conception. It seems very probable that the results of nutritional difficulties or dietary defects early in pregnancy will depend in large measure upon the nutritional state of the mother when pregnancy begins. It may even be that advice as to diet given at the time prenatal care usually begins will in some instances prove to be ineffective, for most congenital defects have early embryonic origin. At least, the preconceptional diet should be carefully reviewed at the first prenatal visit, and the woman's nutritional state should be assessed. If evidence is found to suggest that she is underweight or otherwise malnourished or that her tissue stores of essential substances are depleted, her initial diet should be more than normally supplied with these in order to correct all deficiencies as quickly as possible.

Dr. Kirkwood feels that the finding in our series that the "superior-diet" mothers seemed to have more normal labors and deliveries than the inferior, as well as better offspring, should allay the fears of obstetricians as to the greater birth weight of the "superior-diet" babies. Although this was above previously accepted standards, labor was not more difficult nor were birth

injuries increased. The idea of underfeeding a normal woman in order to produce a small baby and thereby to improve its prospects is certainly not justified. Underfeeding in respect to calories of an overweight woman may be highly desirable, but this must be carefully planned and supervised so as to assure that it does not lead to undernutrition in point of structural substances. The same principle applies to the control of the amount of weight gain by the normal woman. It appears that many women must strictly limit their use of carbohydrates and other foods of high caloric and low structural values if they are to avoid excessive gain and still take an adequate diet.

It seems to me that the problems before you as workers in the public health and educational fields are, first, how to improve the dietary habits and nutritional states of adolescent girls and of women of childbearing age, and second, how to insure that the preconceptional diet be changed promptly after pregnancy is recognized so as to meet the special needs of that period.

The first problem is largely one of general health education and I will not presume to make suggestions, but merely urge that it be considered a matter of great public health importance. The problem of diet during pregnancy is much more intimately related to medical problems and hence requires a good deal of individualization. I would like to stress that it is primarily the obstetrician's or physician's responsibility to see that dietary problems are satisfactorily dealt with. This suggests the need for more adequate education on this subject in the medical schools and in postgraduate medical education. However, this does not in any way minimize the importance of the part the nutritionist should play in all maternal care programs as well as in the education of the public in preparation for parenthood.

Births and the Newspapers

Safeguard Adopted by the New York State Department of Health
Against Indiscriminate Publicity

J. V. DEPORTE, PH.D., F.A.P.H.A.

*Director, Division of Vital Statistics, New York State Department of Health,
Albany, N. Y.*

WHEN the birth registration system of this country was still in a formative stage there was little, if any, official opposition to the publication of names of children in newspapers. In fact, this practice was encouraged as a potential aid in securing better reporting. Now that parents are furnished with a certificate of birth registration, the argument in favor of newspaper publicity no longer holds. A review of the existing regulations shows that in some states a reporter may be given access to the original records; in others, there are restrictions of various degrees, the extreme being a statutory prohibition of communicating "to any person not authorized to receive the same any of the personal or statistical facts" entered on a certificate.* In Canada, I believe, neither provincial nor local officials furnish lists of births to newspapers.

The Public Health Law of New York State provides that a complete copy of a birth certificate may "be issued only upon order of a court of competent jurisdiction, or upon a specific request therefor by the person, if of age, or by a parent or other lawful representative of the person to whom the record of birth relates or by a department of a state or the federal government." A

certification of birth, giving "only the name, sex, date of birth, and place of birth of the person to whom it relates and none of the other data on the certificate of birth" shall be issued upon request "unless . . . it does not appear to be necessary or required for a proper purpose" (Sections 389 and 391).

These provisions, which are effective in the state, outside of New York City, define the maximum of information which a local registrar of vital statistics may give to a newspaper. Since the birth certificate contains no reference to legitimacy and does not give the date of marriage, lists of births routinely compiled by local registrars undoubtedly include births out of wedlock or births which occur before the completion of the usual gestation period following marriage. Public announcement of such births would cause embarrassment and, as has happened, family tragedies. Therefore, a year ago the New York State Department of Health considered the advisability of instructing registrars not to furnish for publication any information contained in birth certificates. Before taking formal action, the department consulted representatives of the press and sought the advice of the Attorney General of the State. Charles J. Tobin, counsel of the New York State Publishers' Association, held that "the matter of a birth, death, or marriage is news and

* Maryland, Annotated Code, 1939, Article 43, Section 27.

the public is entitled to obtain such news from an authentic source and that such news should not be cut off from the press without explicit and certain language in the statute . . ." In less reserved language, Frank E. Gannett, owner of a chain of newspapers, considered the proposed regulation as an "outrageous invasion of the rights of freedom of the press" and that "the pretext that this . . . would hide the birth of illegitimate children is only a smoke screen for imposing on the press of this state a most objectionable restriction and interference with its public duties."

In a formal opinion, dated April 20, 1944, the Attorney General advised the department that such a regulation would be too broad. Here are some of the pertinent passages:

The general principle to be deduced from the decisions bearing on the subject is that not all records kept by public authority are open, as of right, to the inspection of any member of the general public. In the absence of specific statutory provision or regulation authorized by law, an inspection of those which are not kept for the information of the public can be compelled only by one having a direct and tangible interest, distinct from that of the community at large.

It is quite apparent that vital statistics are not a record of the transaction of public business, nor does the statute give any indication that the individual and personal details required to be given are recorded for the information of the general public. Accordingly, it is to the statute that resort must be had to determine whether inspection is required to be allowed or refused, and to what extent it may be governed by regulation. Insofar as the matter is left to rules of the Commissioner or Public Health Council, their power is not limited as it would be in the case of documents which are "public records" in the strict sense.

It rests with the (Public Health) Council to determine that disclosure of information which could be obtained in a certificate of

birth may be made for any purpose which is not illegitimate. It cannot be said that routine publication as a matter of news interest in a newspaper . . . (is), as a matter of law, improper. Therefore, in my opinion a regulation such as you mention, absolutely prohibiting the furnishing of any information by a registrar for publication . . ., is so broad as to exceed the discretion otherwise possessed by the Health Council.

It was found impossible to formulate a regulation or an amendment to the law which would protect the categories of births mentioned earlier and at the same time permit the publication of other births. It was finally decided to leave the decision in each individual case to the judgment of the parents since, after all, it is their natural right to announce or to withhold such information from the general public. We hope the problem will be satisfactorily solved by means of a new item on the reverse of the birth certificate used in the State, outside of New York City:

NEWSPAPER ANNOUNCEMENT OF BIRTH

The following question should be answered "yes" or "no" over signature of physician, midwife, or other attendant at birth: Are the parents willing that newspapers be furnished with a notice of this birth?

(Signed)

The local registrars are being advised by the department that when the question is answered in the affirmative they are justified in furnishing to a newspaper the name and sex of the child, the names of the parents, and the date and place of birth.

The new procedure was heartily endorsed by representative obstetricians and social workers and, since there has been no negative comment on our public announcement, it may be assumed that it will be acceptable to the press.

A Program on Health Films*

ADOLF NICHTENHAUSER, M.D.

*Formerly Section on Health and Medical Films, American Film Center,
New York, N. Y.*

TOO many of our health films are poor, both technically and educationally, their distribution is inadequate, and the methods of their use leave much to be desired. The accomplishments of English documentary films, the enormous success of training films in the Armed Forces, the ways in which Canada has built up a vast audience for educational films, strangely enough, have had no effect on our health films.

After the war, a new and decisive situation is likely to develop. Mass production of projectors will greatly increase the number of film users; many film professionals will return from the services, looking for new fields of activity. These factors, together with the mounting concern for health problems, will offer excellent opportunities for health films. Yet, at the same time, the film industry anticipates important business possibilities in the educational field. Hollywood is preparing to enter it and commercial non-theatrical concerns will increase their activities in that field. Because of their large resources these production interests may gain control of the market. Will they always be able to base production on purely educational considerations? And, in particular, can Hollywood be expected to master the educational medium? Health workers must, therefore, organize their efforts, assume leadership, and furnish guidance if they

want to see films truly serve educational needs.

What is urgently needed is a comprehensive program under educational leadership. A good instrument to carry out such a program would be a competent non-profit central agency for health films. Its essential function would be to bring health education and motion pictures together. It would serve as a center of information, study, and coördination, guide the creative forces in the field, and organize other necessary tasks. Its program should be dynamic. It might be advisable to keep it flexible as an operational unit so that it could freely coöperate or merge with similar projects which may spring up in other areas of the educational film. Since film problems in all subject matter areas are more or less alike, their solution might be achieved more effectively by a unified institution than by coexistent projects. In particular, it seems advisable for many practical reasons to combine an agency for health films with one for medical films.

The basic tasks in an integrated program may be outlined as follows:

INFORMATION ON HEALTH FILMS

Critical reports on health films should be made available to users. These would contain technical data, an objective description, an analysis of content, presentation and effectiveness, and suggestions for the use of the film. Such evaluations would facilitate film selection by workers in the field. Moreover, frank discussion will help health

* Condensation of paper presented before the Public Health Education Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

workers to understand the film medium better and may guide film producers toward better production standards.

STUDY OF FILM EFFECTIVENESS

With so many differences of opinion existing as to the merits of films, there is need to observe their effects on audiences more closely. Tests and studies of audience responses, therefore, should form part of film evaluation. A better understanding of film effectiveness will also help in the planning of new productions.

STUDY OF FILM UTILIZATION

The proper use of films in teaching health needs consideration. Studies should be undertaken covering such problems as exhibition, the best techniques for teaching with films, and the integration of films with other methods and media of health education. The results of such general studies would be useful in preparing suggestions for the use of individual films, and could be incorporated into the evaluations mentioned above.

FILM PRODUCTION

The most important but also most involved task is to supplant the present trickle of weak films with a steadily flowing production program that is creative in its educational and cinematic efforts. To do this we must overcome the complex causes responsible for the inadequacies of our films.

Agencies responsible for the films seem not always to have a clear conception of the film medium. The entertainment film has become a monopolistic industry under rigid censorship, turning out a standardized mass product which is sterile and largely verbalized in form, the contents of which distort reality. It has offered few constructive stimuli to the non-theatrical film. This, in turn, developed a widely used style, the illustrated talk, in which the essential

visual factor was relegated to second place. Health agencies, accustomed to verbal expression, readily adopted this style. Production of such films is easy, but also readily produces inferior films. Health film production has become an office affair, out of contact with the people. It is now largely a matter of writers and talkers; the visually creative element has hardly had a chance in health film production.

Furthermore, funds allocated for production have been insufficient. There has been little coördination and joint planning among health film producing agencies. Health agencies do not think and act in terms of a long-range, methodical production program. They limit themselves to single films at long intervals, sometimes amounting to many years. This circumstance also often leads to crowding of subject matter and to a futile attempt to satisfy too many types of audience with one film.

It is difficult to persuade film producing agencies to apply better production methods as long as an accepted and convincing pattern does not exist. The first step is the development of new methods of production planning. To know the subjects on which films are needed is not enough. What are the particular educational and age levels, living conditions and traditions of the groups to be taught? What, in each case, is the knowledge we want to convey; the attitude and actions we want to produce? How are we to determine whether the audience is willing and able to absorb the material we present? These are some of the questions that must be studied *with and in the field* in order to produce better and more useful films. And since so much of the subject matter of health is interrelated, we must learn to think in terms of integrated production programs on which to base the individual films.

Film needs should be studied. Such studies might proceed on two lines: as

part of a long-term program covering the entire field of health education, area by area, and as a short-term program to determine films in teaching areas where immediate and urgent educational needs exist. The practical objective of the studies would be to furnish preliminary film outlines containing specific information on the following points: (1) purpose, content, and treatment; (2) type and range of audience; (3) potential market; (4) estimate of production budget; (5) production plan, including suggested locations and consultants.

Such outlines for methodical production programs would be of great practical value to producing agencies and would furnish not only information on needed films but concrete suggestions for their production. They would make it easier to interest producers and sponsoring agencies. Incidentally, studies of this kind would offer excellent opportunities for film training of gifted people from both the film and health education fields.

Production financing is a serious problem. Today the health film market is undeveloped. Despite all the heavy demands for health films, most health agencies apparently have not enough funds to use films adequately. Many large agencies, as well as smaller ones, must get along with "free" films or donated prints, and with a fraction of the number of projectors they could use.

A post-war increase in projectors owned by health agencies alone will not suffice. What is necessary is the widening of the film market to the point where it can absorb many times the number of prints sold today. Public and private agencies must be induced to allocate far larger funds for this purpose. A big market will not only be a stimulus for production companies, but will also permit health agencies to meet educational film needs with the

prospect of partial or even full recovery of their production expenses.

The consumers of health films should be organized. Although dissatisfied with the quality and scope of current films, educational agencies and institutions expend thousands of dollars annually for prints. They need health films and have to take what they can get. If these purchasers, large and small, could be organized, they would be heard and felt by producers and might become a powerful force.

Greater participation and closer coordination of health and educational agencies may be needed to solve the many-sided production problem. If individual agencies cannot secure sufficient production funds, there is no reason why groups of them could not pool their resources, and make better films on their common health problems. Health workers ought to realize that, because they are competent writers of health literature, they are not thereby qualified to design or write films. Health and film workers must collaborate in a spirit of mutual understanding from the very beginning of a production.

In addition to these basic tasks, there are others that could best be taken care of by a health film agency. Among them are:

1. Establishment of a clearinghouse service to list productions that are planned or under way and to make known existing film needs.
2. Assistance in the securing of funds for meritorious production projects; development of better methods of production financing.
3. Advice on the selection of film producers and production personnel best fitted for a given project; also on the selection of consultants on subject matter, health education, psychology and sociology.
4. Advice on all technical phases of production.
5. Developing the production of films on local health matters. Such films, so far mostly amateur-made, can be a valuable aid in community health propaganda. Their quality could be improved by expert guidance.

INTERNATIONAL WORK

American entertainment films are known throughout the world. For this reason other countries look to us also

as a source of supply of health films and for general guidance. A central health film agency would play its part in developing international coöperation.

New York State Plans Blood Distribution Program

Edward S. Godfrey, Jr., M.D., Commissioner of Health of New York State, is supporting a bill carrying an appropriation of \$100,000 before the New York State Legislature proposed by the New York State Health Preparedness Commission on a suggestion from the Medical Society of the State of New York. Dr. Godfrey points out that the present use of blood and its derivatives is confined to the larger urban centers, but that it obviously should be available even in remote areas of the state, particularly in view of the progress made as the result of war-accelerated research. He stated that the department's program would be of such a nature as not to conflict with the current program of the American Red Cross in obtaining plasma for military purposes.

Reporting on two years of study of the problem, the Department of Health points out:

1. That the current use of blood and blood derivatives in hospitals and medical practice in the state to date is only 60 per cent of that estimated to be the desirable use on the basis of current knowledge of the value of these products.

2. That more than 90 per cent of the hospitals in the state are not in a position to carry out adequate testing for blood types with regard to the Rh factor, largely because of the scarcity and cost of the so-called potent Rh typing serum.

3. That for the money now being spent in this field, the state could supply to communities all the blood and plasma needed, as well as a large variety of useful derivatives and special products, such as Rh typing serum and antipertussis serum which are not now available.

Army Water Supplies in Foreign Areas*

CAPTAIN JAMES B. BATY, SN.C.

Sanitary Engineering Division, Preventive Medicine Service, Office of The Surgeon General, Army Service Forces, Washington, D. C.

IT is my purpose to discuss in some detail the U. S. Army water supplies at fixed installations in foreign theaters and commands or, as generally termed, "overseas"; and, to point out the high standards which have been applied to a satisfying degree of effectiveness in securing and furnishing safe and attractive water for our troops.

In many instances, important features of military strategy have dictated locations of bases, where the ability to select sources of water supply, adequate in quantity and generally acceptable as to character preliminary to purification, of necessity, has not been given the consideration which was possible in connection with the location of camps and stations in this country. Also, due to the semi-permanent character of many so-called fixed installations, the utilization of which would not be as lasting as corresponding semi-permanent installations in this country, it is understandable that permanent and costly structures, and expensive equipment were not warranted. Transportation has been the determining factor in some isolated locations, in regard to type of equipment employed. Nevertheless, taking advantage of the best that nature had to offer in the way of water sources in each area, and utilizing whatever material and equipment could be supplied, the Army's success in building overseas water supplies, adequate in

quantity, and in providing purification measures to effect satisfactory quality, has been outstanding.

Information relating to the water supply installations at camps and bases in the various overseas theaters and commands has been made available to the Preventive Medicine Service, Office of the Surgeon General, Army Service Forces, through reports on sanitary surveys. These surveys, in most cases, were made by sanitary engineer officers of the Sanitary Corps who are on duty in the respective theaters and commands. In other cases, where sanitary engineers were not available, medical officers, in conjunction with Corps of Engineers officers, made the surveys. It will be understood, for security reasons, that only a general summary of the conditions encountered and what has been provided in the different parts of the world can be publicly released at this time. All details as to quantities and specific conditions at specific locations must necessarily be omitted from this account. It must be borne in mind also that this information is confined to the overseas fixed installations and does not refer to supplies for troops in the field—on the march, or in actual combat.

The survey report for each individual installation covered: the quantity consumed and the adequacy of the source to meet the requirements; a description of the source, including the type, general character and factors tending to cause contamination and measures of protection; a description of the puri-

* Presented before the Engineering Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

fication and treatment facilities provided together with the quantities of chemicals used, including chlorine for disinfection; a description of the methods of distribution and storage, including further possible means of contamination, such as cross-connections, unprotected plumbing fixtures apt to permit backflow, and other objectionable features; and, supervision by the Medical Department, including inspection procedure and sampling schedules, laboratory facilities for examination of samples, and degree of coöperation with the Corps of Engineers operating personnel relative to recommended changes and correction of sanitary defects.

To a very large extent the Army has provided its own independent water supply for each overseas installation, including development of the source, construction and installation of purification and treatment devices, and methods and systems for storage and distribution. Where these new and independent installations are found, the reports have indicated that:

1. In a high percentage of the installations the quantity has been adequate.
2. The high standards of sanitary engineering practice, representative of American municipal practice and of Army installations in Continental United States, have been largely adhered to, in the matters of design, construction, and operation.
3. Equipment at most installations has been of American manufacture, of known dependability to perform the service required of it.
4. Purification and treatment methods have been effective in producing a drinking water supply of safe quality.
5. Proper storage and distribution facilities have enabled continuous service and adequate pressures to be maintained.
6. Means of possible contamination, such as cross-connections and defective plumbing layouts, have been noticeably absent.

Some installations, however, depend entirely on existing local municipal supplies, in the respective foreign areas, or to augment the separate Army

supply, or as an emergency source of supply. Where installations have been entirely dependent upon the existing local supplies, we have found that only a few of them, in more populated areas, are adequate in quantity and satisfactory as to quality. In the majority of cases the following conditions pertain:

1. Adequacy of the supply, in regard to quantity has not been altogether satisfactory. Service has been interrupted frequently.
2. Purification and treatment measures have not been adequate. Haphazard or partial measures are not satisfactory; and much of the equipment or devices, being off-standard or outmoded, are not dependable.
3. Proper technical supervision and skilled control of operation are lacking.
4. Local plumbing installations allow cross-connections and back-siphonage conditions.
5. As a rule, where an existing local supply has been utilized, the Army has been compelled to consider it as raw water, and purify or treat it properly before serving it to the troops.

To summarize briefly the overseas water supply situation we find identical conditions existing in almost all parts of the world. In almost every theater we learn that the sources of water supply are deep wells, dug wells, springs, infiltration galleries, rivers, lakes, and impounded mountain streams. In some cases, and this is true somewhere in almost every theater, there are no sources of fresh water adequate to serve the requirements. Dug wells near the ocean, furnishing only brackish water, or the ocean itself may be all that is available. Distillation, obviously, is necessary.

While the surface supplies in many regions are grossly polluted as a result of human habitation on the watersheds—settlements of natives with indiscreet habits, or even villages with no modern sewerage systems—in other regions supplies from surface streams, particularly from mountainous sections where there is no human habitation, have never shown any evidence of contamination. Nevertheless, the Army takes no

chances in this respect in safeguarding the health of the troops, and treats all water supplies regardless of source.

Filtration is employed in many cases, ranging from somewhat elaborate installations at a few of the larger and more permanent bases, of gravity or pressure filters with the accompanying coagulation and sedimentation units, sometimes even preceded by aeration, to the Army mobile filter units and on down to the Army portable filter units. The last are most common. Chlorination is generally accomplished by means of mechanical hypochlorinators, the regular chlorinators for applying liquid chlorine being used in a comparatively few places.

In general, there has been no attempt to attain the refinements in water purification. Making the water safe to drink in most cases has been the chief objective. Fortunately, it appears from the reports, most of the raw water supplies have been chemically acceptable, fairly clear and palatable, although during rainy seasons the problem of heavy turbidity in many surface supplies is presented. At some of the larger bases purification processes include iron and carbon dioxide removal. At a few, particularly for some laundry supplies, softening devices are employed.

Deep wells are constructed according to good American practice, sealed and protected at the heads. Dependable deep well pumps of practically every recognized make have been installed.

Storage tanks are built of steel, concrete, or wood, and are protected against contamination.

Pipe lines and distribution systems are of cast iron, steel, transite, or wood stave pipe.

Operation by Corps of Engineers personnel has been of a high type. Some men with previous experience in operating water supply systems have been assigned to these jobs, and others

have been specially trained by the Corps of Engineers for this most essential utility.

Supervision of the quality of the water supplies, being a responsibility of the Medical Department under Army Regulations, has been faithfully performed by Sanitary Corps sanitary engineers and Medical Corps medical inspectors. Generally, a medical inspector makes routine weekly inspections of the sanitary aspects of the supply, checking on all features of treatment, while enlisted personnel from either the Medical Department or the Corps of Engineers, or both, makes frequent tests for residual chlorine—at least daily and sometimes several times a day. Since there is not a Sanitary Corps sanitary engineer on permanent duty at every individual station or base, the extent of his activity at each may be limited to periodic visits from headquarters of the theater or command, to make a detailed sanitary survey, advise and otherwise render special technical service.

Defects are generally corrected and improvements in operation are made, as far as facilities will permit, locally and immediately, upon recommendation of the Medical Department, without having to take the matters up through higher echelons. At this point it is gratifying to note that the reports from the overseas areas attest to an excellent relationship existing between the Medical Department and the Corps of Engineers, in the matter of furnishing good water—close liaison and splendid coöperation.

In regard to bacteriological examination of the supplies, the frequency depends upon availability of laboratories and transportation. Station and general hospitals are equipped with laboratories and personnel to make these examinations. Some samples have to be transported by air for many miles, while others are examined

locally. Taking into account both the importance of frequent examinations in relation to the existence of sanitary hazards, and the availability of laboratories, the sampling and examination schedules may be several times a week, weekly, bi-weekly, or monthly. Where they are infrequent, confidence in safe quality in the meantime hinges on maintaining a minimum residual chlorine content of 0.4 p.p.m. or more after a contact period of at least 30 minutes, in all active parts of the distribution system. (The reports indicate that this requirement is being strictly carried out at the great majority of installations at all times, anyway.) It is most pleasing to note that the bacteriological examinations, performed and reported according to accepted standards, show the treated water supplies to be safe for drinking.

It is not my purpose to paint a beautiful picture of the Army water supplies all over the world. There have been plenty of difficulties and obstacles to overcome in the matter of securing adequate sources and furnishing water of safe quality. There have been plenty of problems relating to construction and operation, some of which have never been satisfactorily eliminated due to lack of proper equipment or the uncertainty of continued maintenance of the base. There are places where those in charge, upon reading the preceding account, might say that all of this does not apply to their situation, or that we have overlooked their reports. Naturally, at the first establishment of a new camp or base there are some rather crude facilities. Water supplies from sources, good and bad, have had to be hauled by tank truck or trailer and chlorinated in Lyster bags or boiled before drinking. The writer has personally experienced some of these conditions at isolated stations during the construction period. To a large extent most of the early

problems were overcome as construction progressed, and as the stations or bases were completed for full operation. In some small isolated stations, however, and even in some large camps which are considered as temporary, the drinking water supply still can only be furnished by the process of hauling and Lyster bag treatment.

It may be of interest to point out a few conditions and features relating to water supply which are peculiar to the various sections in which the Army has maintained fixed installations. In the South Atlantic, deep well supplies have exceedingly high iron and carbon dioxide contents, but these are effectively removed by the standard processes of aeration, lime treatment, and filtration at properly constructed plants. The deep well supplies approach inadequacy, however, during dry seasons and must be augmented in some cases by municipal supplies from surface sources, which are not too reliable in regard to quality.

On one island in the South Atlantic the only fresh water available is the small quantity caught during rainfalls. This, of course, is not adequate; therefore, large distillation units are provided for converting ocean water into fresh water.

This same distillation procedure is used to produce the drinking water supply from the brackish water in shallow wells in certain parts of Africa, while the raw water is used for washing purposes. In other places, in Northern and Central Africa, such brackish water from shallow wells being the only available local supply, it is used for all other purposes except drinking, while drinking water must be hauled from fresh water wells some distance away. Deep artesian wells in a desert oasis produce an abundant supply for installations in that vicinity. There are some surface supplies derived from rivers which must be filtered and chlorinated. Where sup-

plies have to be hauled to camps and bases, the drinking water is always chlorinated at the point of consumption, regardless of previous treatment.

In Iran, mountain water drawn through tunnels, and deep wells produce adequate supplies. The surface supply, where used, is subject to a high degree of treatment at well constructed filter plants.

Fresh water in the South Pacific Islands is obtained chiefly from springs, rivers fed by springs, and shallow wells. These are chiefly in coral formations, which being extremely porous seem to contain a great amount of water, forming springs which feed the rivers. A typical island river is about 20 ft. wide by 2 to 3 feet deep. Some river bottoms reveal a coral bed, others a sandy one. Dug wells and developed springs are protected with concrete curbs and covers, or casings made from oil drums with cemented joints. The water is generally clear, colorless, and very palatable. Contamination of the ground water in this type of formation is extremely likely, making waste disposal a greater problem at many locations. Portable filters are commonly used in conjunction with chlorine, but at many places the supply is only chlorinated. There are quite a number of drilled wells to deeper sources, and in the mountainous section clear water from uninhabited areas is obtained from the mountain streams. As in certain parts of Africa, at a few places the supply from dug wells is brackish and must be distilled for drinking purposes, while the untreated water is used for bathing. Similarly, sea water is used at other locations in this area. Individuals collect rain water for laundry purposes.

In the Alaskan area, abundant supplies are derived from glacial streams and wells, sometimes from lakes. These supplies generally are clear and require only chlorination. When the shallow streams freeze up in the winter, the

wells form the principal sources. In the Aleutians, surface reservoirs are formed by building log and earth dams in the ravines in the hills. This generally produces adequate and continuous supplies of clear water from uninhabited watersheds and they are treated only with chlorine. At one location in the Aleutians sea water is distilled.

Along the Alaska Highway in the Northwest, where the writer had several months' experience, supplies are obtained principally from surface sources—rivers and lakes—although there are quite a number of deep wells also. The well supplies have not been altogether satisfactory, due to high mineral content, and sometimes are unreliable as to production; consequently, long pipe lines have had to be laid at some places to bring water from rivers and lakes. A lake supply generally is clear, soft, and otherwise attractive. The rivers during the spring thaw are laden with glacial silt causing heavy turbidities and requiring coagulation and filtration, but the water taken from under the surface ice formation in the winter is clear. There seldom is found any contaminating agent along the surface supplies back from settlements, camps, or bases.

A problem demanding consideration relative to securing and distributing water supplies in the northwestern part of this continent is the extremely low temperatures in the winter and consequent freezing. As previously indicated, river and lake intakes are placed below the maximum recorded ice thickness which may be 5 to 7 ft. South of the permafrost area, main pipe lines laid with 8 ft. of cover are generally amply protected. Smaller pipes, forming the distribution system at a camp or base, may be laid shallower if properly insulated or laid parallel to steam lines in a wood box conduit or wrapped in tar paper. The steam lines are of

course insulated but enough heat escapes to keep the water pipes from freezing. In the far north where permafrost conditions prevail, main water lines are laid on the surface of the ground, enclosed in insulated boxes filled with sawdust or shavings and wrapped with tar paper. Steam is sometimes used at intake pumping stations to keep the intake pipes clear of slush ice. Sometimes steam is injected into the intake well to raise the temperature of the water several degrees. This is termed pre-heating. Under continuous pumping and circulation the water in the pipe line will not drop to the freezing point. Small storage

tanks normally are installed in closed heated buildings. Deep wells in the far North which are drilled through the permafrost must be operated almost continuously in the winter to avoid freezing.

Unlike many other services for the Army, only the equipment and devices for drawing and purifying water supplies could be manufactured at home. The raw product had to be obtained from whatever was available locally. In many cases there have not been numerous problems, while at others the difficulties have been tremendous. On the whole, the Army has done a good job in supplying our troops with adequate and safe water supplies.

Government of Colombia Purchases Health Exhibit

Dr. Bruno Gebhard, Director of the Cleveland Health Museum, Cleveland, Ohio, has announced that the Government of Colombia has ordered duplicates of 73 units in the Museum to be used in a traveling health exhibit in Colombia.

The items ordered will occupy 2,500 square feet of space and will include exhibits on preventive dentistry, tuberculosis, conservation of hearing and of eyesight, the general biology of the human body, and on food for health.

Lessons Learned from the Internal Security Program of the War Department*

LT. COL. W. H. WEIR, SN.C.

Office of The Provost Marshal General, War Department, Washington, D. C.

THE Internal Security Program of the War Department has as its objective the protection of facilities and operating personnel essential to the production of war material for the fighting fronts. The supervision of this program is a responsibility of The Provost Marshal General. The accomplishment of this objective requires closely coordinated activities of many branches of the armed services, civilian agencies of the federal government, state and local agencies, and the management of privately owned manufacturing plants and related facilities.

The uninterrupted production of the materials of warfare requires the methodical application of protective measures calculated to be proper and adequate under the imposed restrictions of man power and material available for this purpose. When the nation mobilized and converted its production resources from the arts of peace to the necessities of war, the Internal Security Program of the War Department was put into operation. This military activity has kept pace with the steady growth of the huge material production program. It has undergone such modi-

fications as were required to meet the necessities of the strategic situation as this has changed during the several years of war. The Internal Security Program of the War Department reaches deeply into both the military and civilian components of the nation. It has adopted many of the time proven methods of protection and safeguarding to the military situation and introduced special methods where necessary to provide an efficient and flexible internal security pattern.

The particular elements of the Internal Security Program of the War Department of direct professional and technical interest to this Association are those relating to the protection of the health of essential personnel engaged in war material production. In the rush of creating a war material production industry involving the rapid conversion and expansion of many manufacturing plants and the construction of many entirely new ones, it was inevitable that gaps in the public health environmental safeguards would occur. In a great many cases of new war plants and major expansions or modifications to existing ones, the review and approval of those features of construction plans involving public health protective items could not be accomplished by local regulatory agencies. Inspection during

* Presented before the Engineering Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

construction was reduced to a minimum because of the tremendous additional work load on public health departments coincident with unprecedented reduction in their technical staff personnel. The ultimate usage of and production demands on manufacturing facilities could not be predicted precisely. These and many other restrictions and limitations well known to inspection and enforcement officials combined to produce a general situation incompatible with recognized standards of public health protection. After the production lines were provided the continued manning of them by safeguarding the health of personnel became an important element of the same Internal Security Program that provides protection for the physical plant and equipment.

The protection of the quality of the water supply in the group of privately owned manufacturing facilities most vital to the war effort was added to the Internal Security Program of the War Department in the early part of 1943. A limited number of Sanitary Corps officers was made available for duty with the Security and Intelligence Divisions (then Internal Security Divisions) of the nine Service Commands into which the continental United States is divided. The technical officer personnel assigned to this program was kept to a minimum in conformity with restrictions on duty assignments of Sanitary Corps officers within the United States. This originally small number of officers assigned to this duty in the service commands now has been reduced to less than half of what it was in 1943. With the large number of manufacturing facilities receiving internal security inspections and the small number of Sanitary Corps officers assigned to this special duty, a program was developed which involved generally the following:

1. Teaching of internal security inspectors to secure basic data with reference to the

various sources, major uses, treatment and distribution of water at manufacturing plants, and other facilities receiving internal security inspections.

2. Review of these basic water data by the Sanitary Corps officers on duty in the Security and Intelligence Divisions of the Service Command headquarters to ascertain actual or suspicious hazardous water supply conditions involving cross-connections between potable and non-potable systems, contaminated private plant water supply sources, potable water connections with toxic process solutions, and potentially dangerous special cases.

3. Inspection of the revealed actual or suspected cases of intermingled potable and non-potable water systems by the Sanitary Corps officers.

4. On-the-spot explanation to plant operating officials of the methods indicated to correct dangerous conditions found through the sanitary engineering inspections.

5. Preparation of water safety reports and recommendations to plant management for correction of hazardous conditions after correlation with other internal security recommendations, particularly fire prevention and continuity of process water.

6. Coördination of the program generally, and wherever possible specifically in each case, with state and local health departments and other agencies interested in water safety.

The inspection and correction program on water supply quality protection which has been carried out in the group of war production plants receiving internal security protection has produced results consistent with those anticipated when it was initiated. One of the fundamental principles upon which the water security program was developed and carried out is mutual coöperation with state and local health departments and other interested agencies. Officers with public health background were selected to operate the program. Every effort was made to conform to the regulations of various states although there is the widest divergence of laws, regulations, and practices throughout the country. The degree of vigilance and control through inspection and enforcement normally maintained varies from those

states and municipalities supporting a realistic and effective program to those which defend the existence of known or unknown hazards by carrying on the books prohibitory rules and regulations with little if any attempt at correction.

A large number of the state and local departments have provided every possible assistance to the representatives of the War Department in carrying out this nation-wide military objective which by its nature was related directly to the civilian population. By working agreements and frequent contacts between representatives of the War Department and the inspection agencies of states and municipalities highly productive programs in certain geographical areas have been developed on a mutual aid basis. Duplication of inspection effort was avoided and a high degree of compliance with the letter and intent of local regulations was secured. Inspection by local agencies was possible only where normal inspection staffs were not depleted or where reduced building activities released qualified inspectors for a directed effort in plants engaged in war production.

There is a growing realization that in the past the major public health supervisory attention to and control of water quality for drinking purposes has been directed to purification at the source of public water systems. While a satisfactory degree of purification generally was being attained at the point of production the adverse effects on quality of the manner of subsequent handling and distribution frequently were unrecognized and uncontrolled. The dispersion of points of danger and the time required for and the complexities of inspection and correction are large factors influencing this situation.

The necessity for the War Department to take cognizance of the dangers of contamination of water supply in vital war material production plants and related facilities for the protection

of essential workers in time of war again draws attention to this field of public health engineering. The problem of protecting industrial employees against water-borne diseases due to improper sources, purification, storage, and manner of distribution for ultimate usage is a continuing one whether in war or peace.

Observations and experiences in the operation of a corrective water safety program which reached into almost every state and included many types of industrial properties serve to point up problems to which public health officials will again turn renewed attention when normal control programs are re-established. The basic problems and their solutions are not new although the variations in situations are almost limitless. New variations will appear as mechanization of industrial plants changes with new post-war products and processes. Increased demands for large volumes of water for multiple purposes are to be expected. Reconversion of war plants to post-war production will bring about interior water system modifications with tendencies to interconnect, cross-connect and otherwise set up conditions for the intermingling of potable and non-potable waters within industrial properties.

With the experiences of the past as a background and the changing industrial program appearing in the not too distant future, it is probable that some state and local inspection and control agencies may reexamine their policies and practices in regard to the safety features of water supply within industrial properties. The reexamination of such programs may take into consideration certain new objectives and the more complete accomplishment of those now included in control efforts. Brief mention will be made of some objectives which public health engineering planning for long range effect undoubtedly will take into account in so far as

they are not now included in state or local control procedures.

Control of the sanitary features of industrial drinking water supplies at the source should be extended. There are many water systems owned and operated within industrial properties which are independent of public systems. As such they may receive only casual attention by control agencies in contrast to the attention given public systems. Wherever possible these installations should be included in normal routine inspection and control programs of drinking water supply. They have all of the physical characteristics of public systems and serve directly a considerable part of the population using a common distributed water supply. The general upgrading of this class of water supplies where needed can be effected by applying the same procedures which have brought public water systems to a generally high state of public health safety. Inclusion of industrial drinking water sources in the regular program of sanitary inspection, laboratory examination of samples, corrective recommendations, and instruction of managing and operating personnel in correct water supply practices is indicated.

The drinking water distribution systems within industrial properties supplied either from public systems or from independent sources should receive the necessary inspection to determine and eliminate cross-connections and inter-connections with systems carrying non-potable water maintained for fire protection, manufacturing processes, and other purposes. The continuous search for practical means of minimizing the dangerous potentialities of unavoidable cross-connections is receiving stimulation in the development of additional equipment specifically designed to accomplish a higher degree of public health protection. On the question of the use of mechanical devices to effect

separation of drinking water systems from sources of contamination there exists a considerable difference of opinion in formulating and administering the regulations of various state and local water control agencies. Within this range of administrative opinion there usually exists an engineering solution.

There is no question that the complete physical separation of drinking water systems from other systems is the ideal condition and should be accomplished wherever possible. However, the practical situation is sometimes such as not to be adaptable to complete physical separation. A realistic engineering approach in such cases should include a careful consideration of the use of mechanical equipment under the specific conditions existing. If the prevention of the intermingling of potable and non-potable water is to be by permissible mechanical equipment, a system of thorough and regular inspection should be established and maintained at point of installation. Such point of separation of water should be considered an object of continuing sanitary engineering inspection similar to mechanical equipment constituting essential units of purification processes.

The sanitary engineering review by state health departments of industrial plant construction plans for new projects goes far toward eliminating many dangerous water supply installations which are not recognized by industrial architects and engineers. Early consultation with operating management, at which time the primary responsibility of the industry for providing health and safety protection in its installations and operations can be explained clearly, is a good investment of time for mutually profitable permanent relations and accomplishments.

Industry by means of alerted managing and operating officials can do much to correct and maintain a clean

bill of health, thereby eventually reducing materially the supervision load of public health departments. It may be surprising to the uninitiated, but it is well known to those having worked in this field, that many otherwise well informed industrial plant officials lack a full understanding of some of the most elementary principles of water supply safety. This is due probably to the general safety which has been built into the public water supplies of the United States and upon which all consumers rely without question. As the sustained sanitary supervision of public water supplies has pushed the danger of water-borne disease from such systems to a very low point, there has been a significant reverse tendency by large consumers of water to feel that short-cuts could be taken in providing cheaper water. The result has been that the managers of many plants and other properties allowed a false sense of security to lead them into falling victims to dangerous private water supply installations or the careless utilization of water systems in relation to manufacturing processes. The attention to water safety practice within industry needs to be moved up to the "front office" from its all too usual location in some corner near the back gate.

While this water supply protection

activity within and related to industrial facilities vital to the war effort is prosecuted, like all other parts of the Internal Security Program of the War Department, as a wartime measure, it is believed that permanent benefits have accrued. Industrial management does not desire to maintain hazardous conditions to which employees are subjected. The dangers of water contamination are not obvious to the layman in this field. It is the obligation of those charged with the continuous public health protection responsibility to reestablish as soon as possible an aggressive program of inspection and correction of sources of danger or sanitary deficiencies. Familiarity by the control agency with the relation of water to the manufacturing and operating processes of the plant is essential. This permits a convincing discussion of corrective measures. It assures management that the solution offered is practical and to the best interests of the operation of the business. The establishment with industrial officials of a cordial and coöperative relationship is of primary importance. This does not indicate a vacillating policy on the part of the public health control agency, but goes a long way toward accomplishing a realistic and effective program of firmness based on sound public health engineering decisions.

Application of the Phosphatase Test to Cheese*

1. A Preliminary Report on Cheddar Type Cheese

HARRY SCHARER

Department of Health, New York, N. Y.

WITH the increase of pasteurization of milk for cheese making, and the possibility of the enactment of legislation† requiring that cheese be either adequately ripened, pasteurized or made from pasteurized milk, a re-evaluation of the phosphatase test in its application to cheese seems desirable.

The phosphatase technic previously described,¹ while suitable for differentiating between cheese made from raw milk and cheese made from pasteurized milk, did not stress the importance of achieving optimum pH conditions, nor did it take into consideration the wide range of acidity present in the many different types of cheese available, nor the complex changes which occur in cheese casein through the aging process, nor the variant amounts of fat present in different types of cheese.

The method of preparing the cheese sample for testing purposes is very important. It was recently ascertained that if the finely divided cheese sample be ground in a mortar with water almost saturated with n-butyl alcohol,

the colloidal suspension of fat and protein was thoroughly broken up, allowing the phosphatase enzyme if present to be extracted by the water almost quantitatively.

The two testing procedures previously recommended,² with slight modifications necessary to produce optimum pH conditions, are equally applicable when the sample is prepared as follows:

Grind 5 gm. of finely divided cheese free from mold with 20 ml. of a solution of 7.5 ml. of neutralized normal butyl alcohol in 100 ml. of water. The butyl alcohol solution should be added in successive 5 ml. portions. Pour the mixture into a test tube, shake vigorously, and allow to stand for about 30 minutes or until the fat has collected at the top while the protein settles on the bottom. For testing purposes, the sample is withdrawn from the relatively clear middle portion, being careful to avoid any inclusion of fat.

If the so-called field test is used,² a ½ ml. portion of the prepared sample is added directly to 5 ml. of the buffered substrate and then thoroughly mixed. A few drops are withdrawn, tested with thymolphthalein indicator solution on a spot plate. If a blue color is not obtained, the pH of the substrate-sample combination is adjusted by the addition of successive small amounts of any of the recommended buffers at pH

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

† The following have enacted legislation of this nature:

California
New York City
New York State
New Jersey
Province of Alberta, Canada

9.6 (a special crystalline buffer is now available) until the thieved portion gives a blue reaction with the thymolphthalein indicator, thus assuring proper pH conditions. The mixture is then incubated for 20 to 30 minutes, six drops of the BQC solution are added, the mixture is immediately shaken and then allowed to stand for 5 to 10 minutes to permit the indophenol development. Unless the indophenol blue color is readily apparent, the n-butyl alcohol extraction must be utilized before the sample may be classed as phosphatase-negative because of the masking effect of side reactions.

Using the above method it was found possible to detect cheese made from phosphatase-negative milk to which was added as little as 0.25 per cent raw milk, or cheese made from milk which tested two units, i.e., very slightly underpasteurized. Cheese made from phosphatase-negative milk remained negative. There is no question of the ability of the test to detect cheese made from raw milk or improperly pasteurized milk. It should be borne in mind that since any phosphatase originally present in the milk is largely concentrated in the cheese, it is quite possible for a so-called "phosphatase-negative" milk (that is, a milk having less than 1 unit) to yield a cheese which will give a slight positive on the test. It is therefore suggested that *at this time* only those cheese samples yielding 5 phosphatase units or more be considered improperly pasteurized.

The laboratory technic may also be used making the same pH adjustment to thymolphthalein if required. After incubation for one hour, the sample is clarified by using the minimum amount of a 4 per cent copper sulfate, zinc acetate, or lead acetate solution necessary to produce a break in the precipitation of the protein. To 5 ml. of the filtrate is added $\frac{1}{2}$ ml. of the buffer and two or three drops of the BQC reagent. If

copper sulfate is used, the indophenol develops much more quickly than when zinc acetate is used, but has the disadvantage that the filtrate itself is slightly colored.

When zinc acetate is utilized, the indophenol is frequently masked by grays. In either instance, any questionable result may be resolved by extracting with 2 ml. of neutralized n-butyl alcohol and comparing the extracted indophenol with a known negative result.

Regardless of which of the procedures is utilized, a "blank" determination should be made on the sample by (a) either heating a portion of the sample to above 170° F. for one minute and incubating a part with the buffered-substrate, or (b) incubating a portion of the unheated sample with buffer in the absence of the substrate (disodium phenyl phosphate). In (a), any phosphatase originally present in the sample is destroyed, so that any indophenol blue resulting from the test may be attributed to a residual phenol, while in (b), although the enzyme if originally present is still present, there is no substrate to support enzyme hydrolysis, consequently, the appearance of an indophenol blue color may similarly be attributed to a residual phenol or some other interference.

Where laboratory facilities are not available for the preparation of the cheese sample, it has been found expedient to place a small quantity, approximately $\frac{1}{4}$ to $\frac{1}{2}$ gm. of finely divided cheese directly into 5 ml. of the buffered-substrate, shaking thoroughly in order to effect as complete a dispersion or solution as possible, making the pH adjustment to thymolphthalein, and then incubating the mixture for at least 30 minutes. While this technic does not yield the sensitivity encountered when the sample is properly prepared, it will serve most field inspection purposes.

Attention is further directed to previously recommended precautions^{3, 4} regarding false positives and the necessity of using freshly prepared reagents. Our recent work has indicated that yeast and some molds (a culture of *Oidium lactis* and *Penicillium notatum*) which grow on cheese under certain conditions will produce appreciable amounts of phosphatase, but that if the mold growth is removed before the cheese sample is prepared for testing purpose, no difficulty or false positive is encountered.

No attempt should be made to match exactly the extracted indophenol blue resulting from a cheese assay with the published color standards developed for milk phosphatase assay. The higher amount of fat present in cheese, when extracted by the neutralized normal

butyl alcohol adds yellow to the indophenol blue producing greens. The comparison should be made as to whether the test solutions contain more or less of the blue component than the standards or the "blank" test.

NOTE: The comments in this article refer to cheddar type cheese but not to "process" cheese, i.e., cheese which is reground and then "pasteurized." This latter type cheese presents unique problems which will be elaborated in a subsequent article.

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Health Education Workshop

A Health Education Workshop to be held from July 2 to July 20, dealing with both personal and community health, will be a feature of the 1945 Main Summer Session at The Pennsylvania State College. This Workshop will be conducted under the auspices of the Summer Sessions with the Pennsylvania Department of Health and the

Pennsylvania Department of Public Instruction cooperating. The resident staff will be augmented by nationally known leaders from federal and state as well as from private agencies. Further information may be obtained from the Director of Summer Sessions, The Pennsylvania College, State College, Pa.

Factors in Army Water Quality Control*

W. A. HARDENBERGH, COLONEL, SN.C.

Director, Sanitary Engineering Division, Preventive Medicine Service, Office of the Surgeon General, U. S. Army, Washington, D. C.

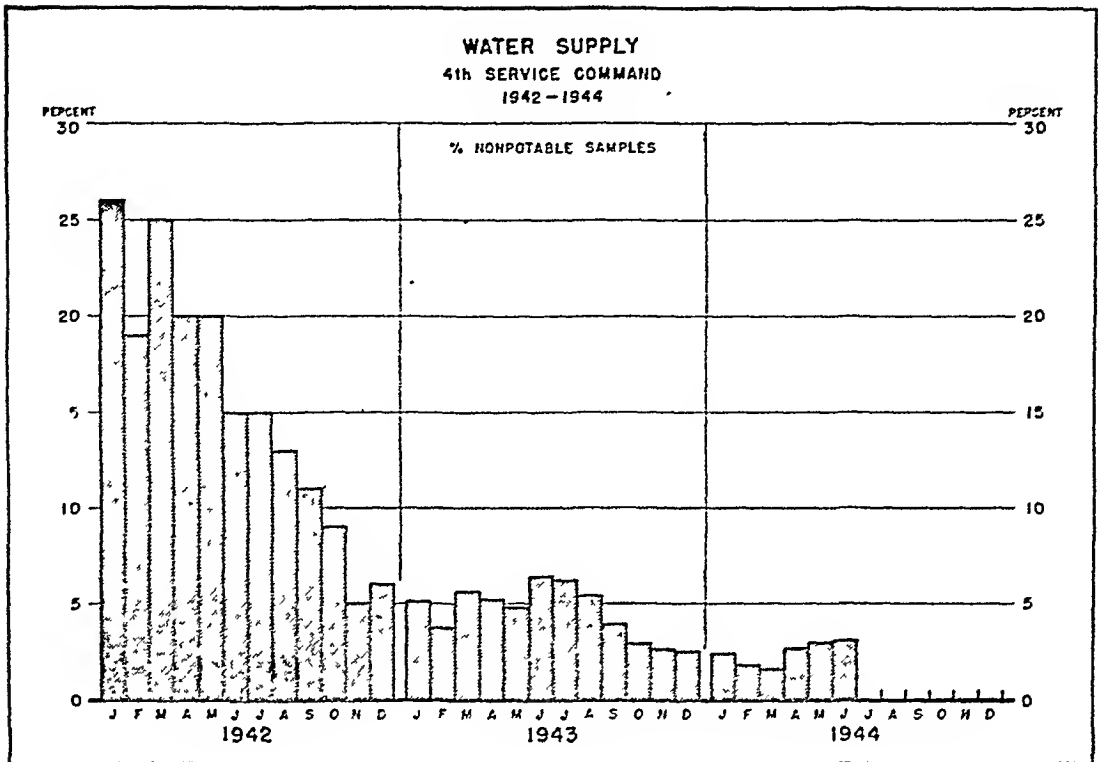
ONE of the important objectives of the preventive medicine program of the Army is to safeguard the quality of all water used by the Army. This program applies alike to fixed installations in this country and overseas, and to troops in the field. The purpose is to provide a safe water all of the time, irrespective of location or hazards to be met, and a palatable and attractive water whenever possible. To accomplish this, in fixed plants, the entire installation must be designed and constructed with due regard to the many factors that may affect the quality of the water, and the treatment plant must be operated skillfully. Field purification equipment must be capable of removing or destroying all disease-bearing organisms. Soldiers who cannot be provided otherwise with safe water must have a simple, reliable, and unobjectionable method of individual water purification. Thus, the water quality control program reaches into all echelons of the Army and to all parts of the world. However, for reasons of security and brevity this paper will be limited primarily to the control of water quality in fixed installations.

An early step in the control of Army water supplies was the adoption of what may be termed state sanitary en-

gineering standards. Over the years there has been built up a largely uncoded system of policies and standards that represents, when effectively applied, a safe practice. To apply them effectively, it was necessary to staff many key positions with engineers familiar with state methods. Fortunately some engineers with state sanitary engineering training were available in the Sanitary Corps Reserve, and others were commissioned from civil life early in 1942. These men were assigned, so far as possible, to key positions, including my own office; Service Command Headquarters, either as Service Command sanitary engineers or as assistants; overseas theaters; and important camps.

To implement the adoption of these general policies and standards, four specific steps were taken which have been principally responsible for the high quality of the water supplied to the Army. These steps were: *a* The adoption of sound design standards for all new construction including extensions and enlargements; *b* a careful examination of all existing plants for sanitary defects and the immediate application of corrective measures; *c* the adoption and enforcement of a sound and effective policy in regard to chlorination; and *d* a cooperative program with the Corps of Engineers leading toward better operation. To these may be added a comprehensive sampling and

* Presented before the Engineering Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

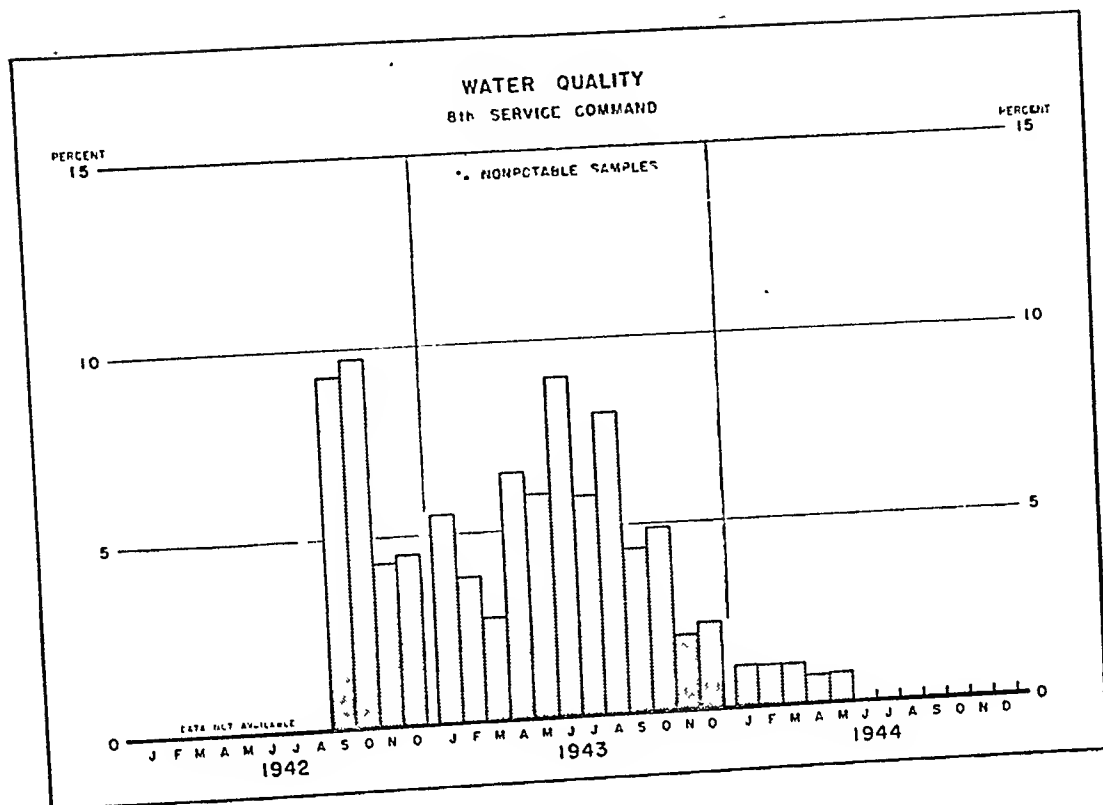


testing program. In the Fourth Service Command alone, more than 6,000 samples are analyzed each month. For the most part, this also is a joint program of the Corps of Engineers and the Medical Department.

Standards of Design—At the beginning of the emergency, the Army had given no special consideration to those factors in design that might affect health. Fortunately most of the plants built before and during 1941 were designed by recognized consulting engineers and were generally satisfactory, though numerous sanitary defects resulted from hasty and sometimes careless construction. However, when the Corps of Engineers took over the construction activities formerly carried on by the Quartermaster General, the design standards recommended by our Division of Sanitary Engineering were incorporated into the *Engineering Manual*, which thereafter governed all design and construction. The recommended design factors included: Quan-

tity to be provided; source; distribution system capacity; location of water lines in respect to sewer lines; disinfection of water mains, wells, and storage facilities; regulations in regard to dual systems; the quantity of storage; design factors in treatment plants; provision of chlorination facilities; pumps, standby power and pumping stations; and laboratory equipment.

Sanitary Surveys—In order to locate sanitary defects in existing plants before any epidemic of disease should occur, and also to determine as a guide for future policy what types of defects were being built into Army plants, a sanitary survey of all Army water supplies was initiated in August, 1941. Points covered in this survey included population served; total and per capita consumption; a full report on sources of supply; a detailed description of the treatment plant, including size, design capacity, and operation rate of each unit; chemicals used; point of application of chlorine; chlorine residuals;

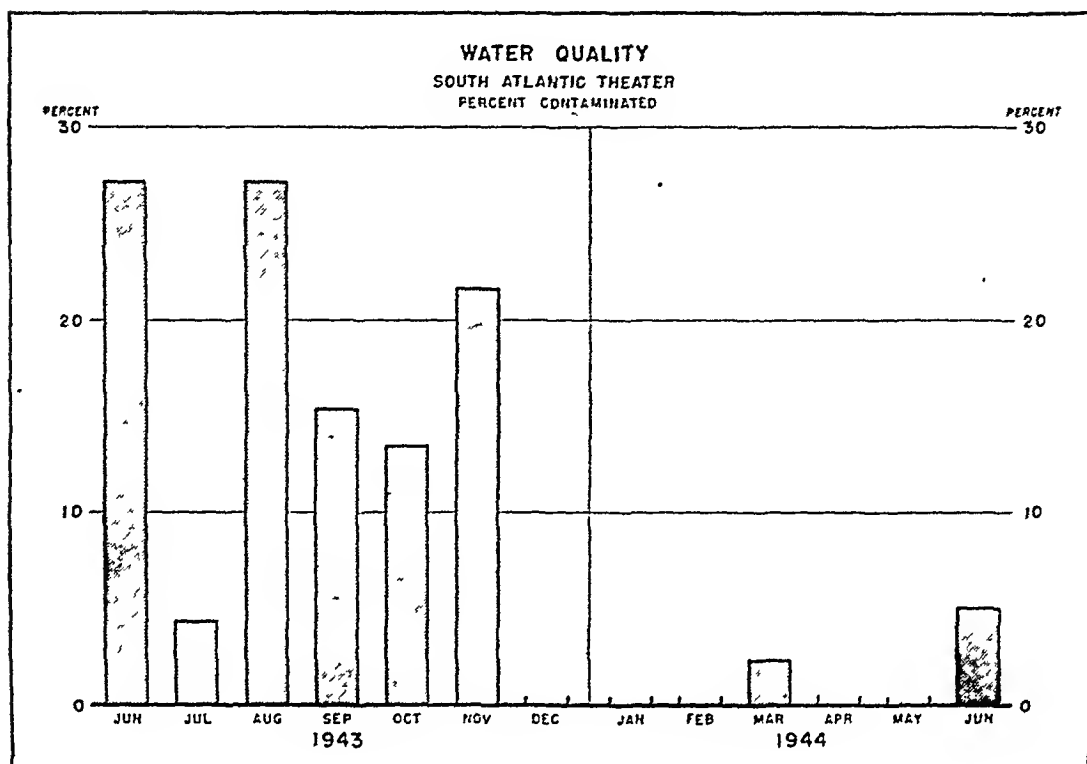


tests of raw and treated water; a description of the distribution system; pressures; storage capacity; cross-connections with other sources, with other distributing systems, with unprotected plumbing systems, and with other devices, as sewage pumps; other conditions that might permit contamination; laboratory facilities; operating personnel; and samples of daily reports. When water was purchased, the survey covered the municipal or other plant supplying the water. As a result of this survey, many defects were located. With the coöperation of the Corps of Engineers, immediate steps for correction were taken. So far as possible, the services of experienced public health engineers of the Sanitary Corps were utilized for the surveys. This survey is on a periodic basis and plants are resurveyed at 6 to 12 month intervals, by Sanitary Corps engineers working under the direction of the respective Service Commands.

Chlorination—A policy of chlorinat-

ing all water supplied to the Army was adopted in 1942, and to give effect to the policy a residual of 0.4 p.p.m. was prescribed for the commonly used parts of the system. When chloramines are used, the required residual is 0.6 p.p.m., and in both cases a reasonable contact period is specified. The purpose of this requirement was to provide a margin of safety against recontamination. This was deemed necessary because of general wartime conditions; the fact that piping was often not properly cleaned nor joint material sterilized before use; the necessity for frequent cuts into pipe lines for repairs, extensions and additional service connections; and in some camps the occasional or frequent existence of negative pressures due to either lack of water or of main capacity.

There was relatively small reaction against this requirement on the part of the Army, and nearly all of the reaction that did occur was anticipatory. In a few places, it was necessary to use



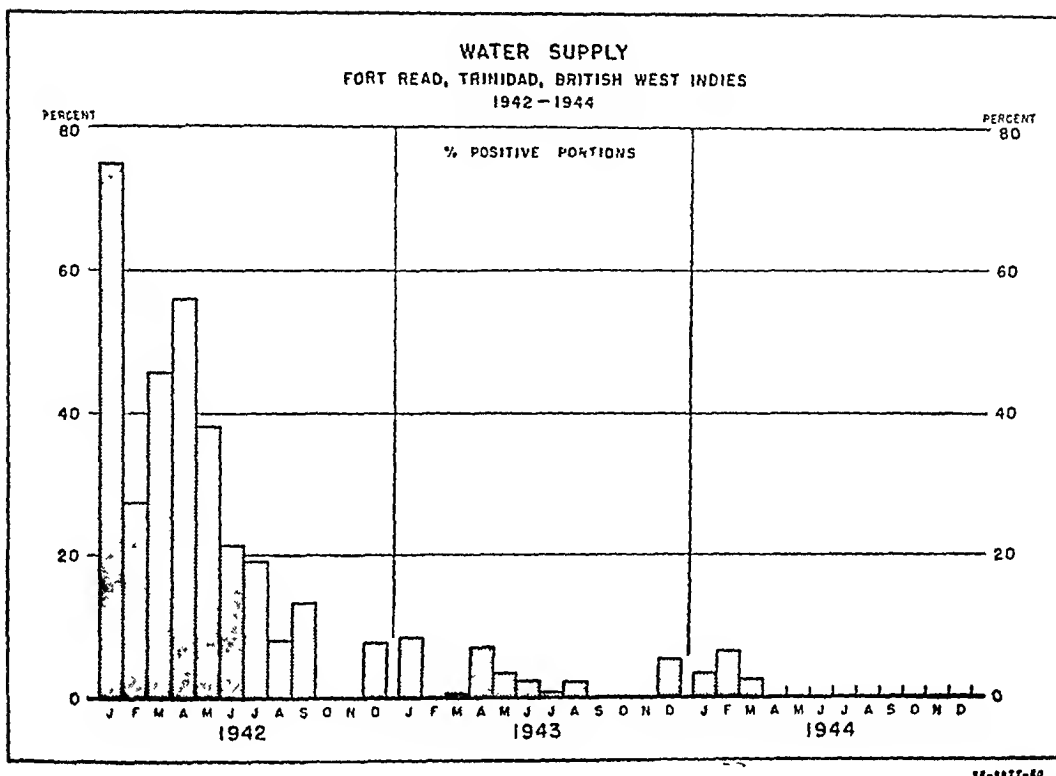
break-point chlorination, and treatment for iron and sulfur removal was required in some camps. Generally speaking, those water supplies that required such special treatment had not previously been getting effective chlorination. In the past 18 months, there have been very few complaints of chlorinous tastes, either from the Army, or from those people outside the Army who were in the beginning most outspoken in criticism of the Army's policy.

It is my opinion that the requirement for a reasonably high chlorine residual has been one of the most important factors in insuring for the Army a consistently safe water. In addition to providing a distinct factor of safety, it makes the Army water-quality-conscious through the requirement for daily or more frequent chlorine residual tests. The cost of the program was and is trifling compared to the cost of the illness that might have occurred without it.

In all of this work the Corps of En-

gineers, and especially the Repairs and Utility Branch, coöperated most cordially and closely. When it is realized that water supply in the Army is a joint responsibility of the two services—the Corps of Engineers for design, construction, and operation, and the Medical Department for all factors that affect health—the necessity for a close and understanding partnership is clear. Nowhere has this been more marked than in the operation of Army water plants. Regardless of scarcity of personnel, low rates of pay, and other handicaps, the Repairs and Utility Branch has maintained a very high standard of operation. The Medical Department has been glad to help whenever and however possible, as by supplying instructors at operators' training schools, and loaning, when necessary, sanitary engineers to assist in solving unusual problems or to help temporarily in operation.

FIELD WATER SUPPLIES
Field Purification Equipment and



Methods—One of the most difficult problems of water supply in the field has been to provide assurance against the water-borne spread of amebic dysentery and schistosomiasis. Both of these diseases had to be considered in the treatment of drinking water, and the latter in the case of water used for bathing, also. The standard Army portable and mobile filters, as supplied and routinely operated in the field, do not regularly remove either the cysts or the cercariae. Pending development of the new diatomaceous earth filters, which are now being produced, effective procedures were worked out to permit the use of the standard filters. The Water Equipment Laboratory of the Corps of Engineers, the National Institute of Health, and the Tropical Disease and Sanitary Engineering Divisions of the Preventive Medicine Service participated in the testing and development of methods of treatment. However, for areas where tropical disease is not a problem, the present sand filters are satisfactory and will be con-

tinued in use. A special light-weight, hand-operated filter, using a paper pad or diatomaceous earth has also been developed for use by very small groups.

The Lister bag and the canteen continue to be basic water supply equipment for troops, and methods have had to be developed to assure cysticidal action in them with standard Army issue sterilizing agents. This has been done and, in the meantime, nearly every sterilizing compound of promise has been tested in an attempt to find something better than that we now have. It is necessary to go slowly in the adoption of new sterilizing agents, and to be certain that the gains outweigh the disadvantages. For instance, the use of a sterilizing method radically different from the present hypochlorite procedure would require revision of all existing field training programs, changes in all field manuals, and retraining of troops in the field to use the new methods, as well as the provision of the new equipment and material. The time lost in training and

the errors that might occur in the field as a result of the change could readily counterbalance, during this war, all the expected advantages of a somewhat superior procedure.

Important developments in field water supply equipment include new rapid well drilling equipment and distillation units of astonishing efficiency. A new well can usually be sunk in less time than is required to clean out or repair a contaminated or damaged well; and such equipment is very valuable in making possible the use by troops of relatively pure ground waters in areas where surface supplies are seriously contaminated or are scarce. Distillation apparatus has been essential in many of our island operations and in some fixed posts.

SPECIAL PROBLEMS

Hotel and College Water Supplies—Two years ago the Army took over nearly 500 hotels of varying size, age, and condition, and proceeded to house in them several times as many people as they had ever previously contained. This heavy personnel load placed a dangerous burden on the water and sewerage systems of these hotels, accentuating the danger from sanitary defects.

As illustrating conditions, negative pressures of 10 inches of mercury were not uncommon on top floors of older hotels during peak water use. With the full coöperation of the Army Air Forces and the Corps of Engineers, these housing facilities were rapidly surveyed by trained sanitary engineers of the Sanitary Corps, and the numerous defects found were promptly corrected. In some cases new piping had to be installed. Rechlorination was also utilized where necessary to provide an additional margin of safety.

Somewhat the same condition existed in colleges when the Army Specialized Training Program was initiated and

the same general policies were put into effect as in the case of hotels.

So far as is known no epidemics of water-borne disease resulted directly from Army occupancy of hotels or colleges. A few minor outbreaks of intestinal disease occurred which seemed traceable to other causes than to defects within the buildings.

Port and Ship Water Supplies—The problems of protecting port water supplies against contamination and of providing safe water at all times have been most difficult. Regulations were recently issued which should assure reasonable protection of port water supplies. A fully satisfactory solution of the ship water supply problem has not yet been reached though much progress has been made. Both port and ship water supplies are complicated by reason of military necessity, military security, and the many agencies involved.

Industrial Plant Supplies—The great industrial program necessitated by the war created many hazards in manufacturing plants due to cross-connections with process, cooling, secondary or other water supplies, and with waste discharge lines. In coöperation with the Provost Marshal General, and under the direction of a skilled engineer of the Sanitary Corps, a comprehensive and effective program for the early detection and prompt repair of defects was put into operation. This program has accomplished its initial objective and is now being reduced in scope, but its value is attested by the fact that water-borne disease has not been a factor of any importance in reducing industrial production.

Results—Some results of operation are available, both from this country and from overseas. In the continental United States, the average of all Army post water supplies show, for the third quarter of 1943, 3.47 per cent non-potable samples; for the fourth quarter

of 1943, 2.17 per cent; for the first quarter of 1944, 1.33 per cent; and for the second quarter of 1944, 1.46 per cent. During these 12 months, 242,976 samples were examined, of which, 5,182 were non-potable, an overall average of 2.13 per cent.

Careful records of bacteriological examinations are maintained by our Service Command sanitary engineers. Water quality control in all Service Commands has been good. Records of the Fourth and Eighth Service Commands, shown herewith are typical. Interesting data are provided by studies of the records of our purchased supplies. When grouped by states, the averages show quite clearly the progress the various states have made in establishing effective water quality control programs. In general, our records show that the average quality of purchased supplies, before rechlorination, is inferior to Army-produced supplies.

Because facilities for large scale testing are infrequently available overseas, and also because many of our overseas installations are semi-permanent in nature, data from them are somewhat meager. In general, reliance for safety is placed on the maintenance of an adequate chlorine residual—generally 1 p.p.m., unless need exists for more. Records for one large overseas post and

for one theater are shown herewith. The theater reports are remarkable in that they represent a dozen installations scattered over a length of some 2,500 miles, requiring a good organization and many hours of air travel on the part of the sanitary engineer in charge.

The program of water quality control is one of the activities of the Sanitary Engineering Division, which is charged with responsibility for all engineering factors that may affect the health of the Army. In the execution of this program, as in all of our other work, the Sanitary Engineering Division has had the full encouragement and support of the Army Medical Department, and especially of Brig. General James S. Simmons, Chief of the Preventive Medicine Service, of which we are proud to be a part. The close co-operation of the Repairs and Utility Branch of the Corps of Engineers has been an essential factor. Perhaps most of all, we are indebted to the skill, knowledge, enthusiasm, and aggressiveness of the engineers of the Sanitary Corps, for without them the program could never have been realized. These sanitary engineers are serving in every battle area and are contributing their full share to the amazing health record of the United States Army in World War II.

Laboratory Criteria of the Cure of Typhoid Carriers*

ROY F. FEEMSTER, M.D., DR.P.H., F.A.P.H.A., AND
HELEN M. SMITH

*Director, and Statistician, Division of Communicable Diseases, Massachusetts
Department of Public Health, Boston, Mass.*

MOST reports on the cure of typhoid carriers by cholecystectomy give the impression that only three-quarters of the operations, or less, succeed in eliminating the focus of the bacilli,^{1, 2, 3} although some report better results.⁴ In Massachusetts we have a record of approximately 90 per cent cures. Bigelow and Anderson in 1933⁵ gave the only previous report from this state on the subject. At that time there had been 13 operations with 13 apparent cures. Since then we have accumulated records on 55 additional operations. This paper describes our further experiences with the hope of encouraging even wider use of cholecystectomy in the cure of typhoid carriers.

Recently the hope has been revived that non-surgical cure can be successful. Many of the current papers have described attempts at cure by medical treatment, particularly with sulfonamide derivatives. The idea that a chemical or biological agent might be used to eradicate the focus of typhoid bacilli is, of course, not a new one. By 1928, Stertenbrink⁶ was able to summarize the results of more than 100 different agents which had been tried. All had been uniformly without success. Some of the papers on the use of sul-

fonamide derivatives have made claims of cure,^{7, 8} but in most instances the authors have failed to follow criteria rigid enough to prove the case. Other reports have recorded failures.⁹⁻¹² We believe that the hope of non-surgical cure is as yet unjustified even with sulfonamide derivatives. We have had complete failures when four carriers were given large doses of the drug—two, sulfaguanidine for 7 days, and two, succinylsulfathiazole for 10 days.

As various chemical and biological agents have been tried and found to be failures, it has been necessary to return repeatedly to cholecystectomy as the only method which regularly cures an appreciable number of carriers. Bigelow and Anderson⁵ emphasized the necessity of insuring that (1) the cases studied are permanent carriers, (2) they are gall-bladder carriers, and (3) the cure is permanent, if we are to arrive at the truth in regard to the effectiveness of cholecystectomy.

The criteria of the permanence of the carrier state should depend upon the fulfillment of one or more of the following conditions:

1. Persistently positive stool cultures for one year prior to operation, either in convalescents or in accidentally discovered carriers with no history of typhoid fever

2. History of typhoid fever 12 months or more prior to the date of operation

3. No history of typhoid fever, but a record of having caused a case at least 12 months prior to the date of operation

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

To establish that a person is a bile carrier, and supposedly a gall-bladder carrier, it is necessary to demonstrate typhoid bacilli in the bile (1) by duodenal drainage prior to operation, or (2) by culture taken from the gall-bladder at the time of operation. Finding typhoid bacilli in the gall-bladder at post-mortem would seldom be of value in a study of the usefulness of cholecystectomy.

There is need for adherence to more rigid criteria for the cure of carriers, scientifically in order that reports of cures will not be prematurely made, and administratively in order that carriers will not be released from supervision until cure is certain.

We believe that the criteria of cure should demand that (1) 12 monthly negative stool specimens be submitted after the last positive stool; and (2) the bile be demonstrated to be negative by duodenal drainage by health department staff or others experienced in performing the procedure. While we still continue to require two diarrheal specimens obtained by giving magnesium sulfate through the duodenal tube, we are beginning to doubt the necessity for the procedure in the release of carriers, although such specimens may be useful in search for them.

Since the discovery, follow-up, and release of typhoid carriers depend almost wholly on laboratory procedures,

it is self-evident that all bacteriological work on such carriers should be done by thoroughly reliable workers. Until our department was given the power of approving local laboratories, we required that the tests be performed in our own state laboratory.

Let us now study the 68 carriers operated upon in Massachusetts in the light of the above criteria. The evidence that they were permanent carriers is summarized in Table 1. Thirty-seven (54.4 per cent) of the 68 had positive stools at least 12 months prior to operation. In 18 (26.5 per cent) there was a history of typhoid fever one year or more before operation. This makes a total of 55 (80.9 per cent) in which permanence was established before operation. In only 13 (19.1 per cent) was there any question of the permanence of the carrier condition at the time of operation. Two are now known to have been permanent carriers because the operations failed to cure. Four had positive stools at least 6 months before operation, 2 had positive stools, and 2 caused cases at least 3 months before operation. In the other 5, the period of observation had been less than 3 months. Two were food handlers who wished to pursue their occupations, and 1 had an emergency operation because of gall-bladder symptoms. The other 2 were unwilling to postpone the operation since circum-

TABLE 1
Permanence of Carrier State
68 Typhoid Carriers Undergoing Operation
Massachusetts
1924-1944

| <i>Criteria of
Permanence</i> | <i>Time Prior to Operation</i> | | | | <i>Total</i> |
|-----------------------------------|--------------------------------|---------------|---------------|-----------------------------|--------------|
| | <i>12 Mos.</i> | <i>6 Mos.</i> | <i>3 Mos.</i> | <i>Less than
3 Mos.</i> | |
| Positive Stools | 37 | 4 | 2 | 1 | 44 |
| History of Typhoid | 18 | .. | .. | .. | 18 |
| Source of Case | .. | .. | 2 | 4 | 6 |
| | <hr/> 55 | <hr/> 4 | <hr/> 4 | <hr/> 5 | <hr/> 68 |

TABLE 2
Cures Obtained by Operation
68 Typhoid Carriers
Massachusetts
1924-1944

| Result of Operation | Permanent Carriers
Bile at or Prior to Operation | | Probably Permanent Carriers
Bile at or Prior to Operation | | Total |
|---------------------|---|-------------|--|-------------|-------|
| | Positive | No Specimen | Positive | No Specimen | |
| Cured | 33 | 4 | 5 | 0 | 42 |
| Probably Cured | 12 | 3 | 5 | 1 | 21 |
| Failure | 3 | 0 | 1 | 1 | 5 |
| | 48 | 7 | 11 | 2 | 68 |

stantial evidence indicated that they were permanent carriers.

Positive bile cultures were obtained in 10 carriers prior to operation, in 14 at operation, and both prior and at operation in 35, giving a total of 59 (86.8 per cent of the 68 carriers). In the other 9 we have no bacteriological evidence that the focus was in the gall-bladder. However, cure was obtained in 4, apparent cure in 4, and the 9th was a failure.

The cures obtained by cholecystectomy are shown in Table 2. In this

table the carriers are divided into permanent and probably permanent groups. Of the former, numbering 55, 37 were cured, 15 probably cured, and 3 were failures. Of the 13 in which permanence had not been definitely established, 5 were cured, 6 probably cured, and 2 were failures. It will be noted that 4 of the 5 failures had shown typhoid bacilli in the bile at or prior to operation. No bile specimen was examined on the 5th.

The persistence of positive stools after operation is shown in Table 3.

TABLE 3
Persistence of Positive Stools After Operation
68 Typhoid Carriers
Massachusetts
1924-1944

| Stools Positive
After Operation
(Weeks) | Cured,
Removed
from List | No Final Bile Specimen | | Not
Cured | Totals |
|---|--------------------------------|----------------------------|--------------------------------------|--------------|--------|
| | | Neg. Stools
for 12 Mos. | Neg. Stools
for 3 Mos.
or More | | |
| All Negative | 31 | 10 | 5 | .. | 46 |
| 1 | .. | 1 | .. | .. | 1 |
| 2 | 5 | .. | .. | .. | 5 |
| 3 | .. | .. | .. | .. | .. |
| 4 | .. | .. | 1 | .. | 1 |
| 5 | .. | 1 | .. | .. | 1 |
| 6 | .. | 1 | .. | .. | 1 |
| 7 | 1 | .. | .. | .. | 1 |
| 9 | .. | 1 | .. | .. | 1 |
| 14 | .. | 1 | .. | .. | 1 |
| 19 | 1 | .. | .. | .. | 1 |
| 22 | 2 | .. | .. | .. | 2 |
| 52 | 1 | .. | .. | .. | 1 |
| 65 | .. | .. | .. | 1 | 1 |
| 65 | 1 | .. | .. | .. | 1 |
| 80 | .. | .. | .. | 1 | 1 |
| 97+ | .. | .. | .. | 3 | 3 |
| Total: | 42 | 15 | 6 | 5 | 68 |

It will be seen that in 46 (67.6 per cent) of the 68 carriers no positive stools were obtained after cholecystectomy, indicating an immediate and permanent cure. In 11 of the 42 removed from the list, on the other hand, typhoid bacilli were found in the stool for periods as long as 66 weeks, after which the bacilli completely disappeared. Of the 15 who can be removed from the list after a final bile drainage, the longest period of positive stools after operation was 14 weeks, and in those followed for only 3 months, only 1 had any positive stools after operation. This indicates that those classified as probably cured will eventually prove to be cured.

were discovered epidemiologically, 16 from release cultures on convalescents, 4 in routine hospital examinations, 2 in outbreaks of dysentery, and 1 in routine food handler examinations. Seventeen had caused no cases but the remaining 51 were responsible for 198 cases of typhoid fever. Except for 24 housewives, 12 food handlers, 6 inmates of mental hospitals, and 5 nurses, occupations were numerous and had no connection with the manner of spreading the disease. The average age at onset of the 51 who had a history of typhoid was 32.4 years. The average age at operation was 48.1 years. Of the 26 operated upon by a special surgeon designated by the department, only 1

TABLE 4
Percentage of Cures by Operation
68 Typhoid Carriers
Massachusetts
1924-1944

| | <i>Cures</i> | <i>Failures</i> | <i>Total</i> | <i>Per cent Cured</i> |
|---|--------------|-----------------|--------------|-----------------------|
| All Tests Complete | 42 | 5 | 47 | 89.3 |
| No Final Bile,
Negative Stools for 12 months | 15 | .. | 15 | |
| Sub-Total | 57 | 5 | 62 | 91.8 |
| No Final Bile,
Negative Stools for 3 months | 6 | 0 | 6 | |
| Total | 63 | 5 | 68 | 92.5 |

The percentage of cures is given in Table 4. Using only those released from the carrier list, there have been 42 cures and five failures, or 89.4 per cent cures. When those with negative stools for 12 months or more are included, there have been 57 cures and 5 failures, or 91.9 per cent cures. When the more questionable cases are included, there have been 63 cures and 5 failures, or 92.6 per cent cures. No matter which figure is used, we can say that we have had about 90 per cent cures in this series.

Certain facts in regard to these 68 carriers may be of interest. Nineteen were males and 49 females. Forty-five

was a failure. Of the 42 operated upon by local surgeons 4 were failures.

SUMMARY

1. In Massachusetts 68 typhoid carriers have had gall-bladder operations; there have been 63 cures and 5 failures (92.6 per cent cures).

2. Medical treatment, even with sulfonamide derivatives, cannot be relied upon to eliminate the gall-bladder focus. We have had 4 failures with sulfaguanidine and succinylsulfathiazole.

3. The gall-bladder should be well established as the focus before cholecystectomy is recommended. Only those cases in which typhoid bacilli are found in the bile either before or at operation should be included among failures.

4. The criteria of cure should consist of a

careful bacteriological follow-up for not less than 12 months of negative stool cultures followed by at least one negative bile.

5. Cholecystectomy is still the only effective method of curing typhoid carriers.

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APHA Testimony on Senate Bill 191 Available

The Association office has available a limited supply of copies of the testimony presented by Reginald M. Atwater, M.D., Executive Secretary of the Association, on February 28 before the Subcommittee on Education and Labor of the U. S. Senate on S. 191, the Hospital Construction Bill. Limited space in the *Journal* has prevented the publication of this testimony which Dr. Atwater presented summarizing the action of the Executive Board, which declared this bill to be reasonably in conformance

with recommendation IV of the Association's declaration on Medical Care in a National Health Program.* Dr. Atwater, who appeared by designation of Abel Wolman, Dr. Eng., Chairman of the Executive Board, also reported the suggestions which had grown out of a study of the bill by the Subcommittee on Medical Care of the Committee on Administrative Practice. Joseph W. Mountin, M.D., Washington, D. C., is Chairman of the Subcommittee.

* *A.J.P.H.*, 34, 12:1252-1256 (Dec.), 1944.

Insect Problems in World War II with Special References to the Insecticide DDT*

F. C. BISHOPP

*Assistant Chief, Bureau of Entomology and Plant Quarantine, Agricultural
Research Administration, U. S. Department of Agriculture,
Washington, D. C.*

INSECTS and the diseases they carry have played a dominant rôle in determining the outcome of major military operations throughout recorded history. There appears to be little doubt that Napoleon's campaign against Russia failed because of outbreaks of louse-borne typhus and that his operations in the New World aborted because of yellow fever and malaria. The fall of the Roman Empire has been attributed by many writers to the occurrence of epidemic diseases both among the armies and among the civil populations. The lack of knowledge of the nature of the diseases involved, their means of transmission, and effective methods of control would make it impossible for an organization of the magnitude of the Roman Empire to continue its existence on such a scale. The statement that among our troops in the Spanish-American War insect transmitted diseases took more lives than Spanish bullets is well founded, as is also the statement that the long stalemate existing between the German and British troops in the Gallipoli campaign in World War I was due to the large number of men in each army

who were incapacitated by malaria.

Hans Zinsser has stated, in his interesting book *Rats, Lice, and History*, that "soldiers have rarely won wars. They more often mop up after the barrage of epidemics. And typhus, with its brothers and sisters—plague, cholera, typhoid, dysentery—has decided more campaigns than Caesar, Hannibal, Napoleon, and all the inspector generals of history. The epidemics get the blame for defeat, the generals the credit for victory. It ought to be the other way round—perhaps some day the organization of armies will be changed, and the line officer will do what the surgeon general lets him do. Among other things this plan would remove about 90 per cent of the expenses of the pension system." In discussing the collapse of the Roman Empire, Zinsser also makes the observation "This is still entirely applicable to modern times. Experience in the cantonments of 1917 and in the sanitation of active troops convincingly showed that war is today, as much as ever, 75 per cent an engineering and sanitary problem and a little less than 25 per cent a military one. Other things being approximately equal, that army will win which has the best engineering and sanitary services."

Far-flung commercial, social, and

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

military operations provide many of the factors necessary to fan latent or endemic diseases into epidemic and often critical proportions. The assembling of troops from different sections of the country exposes non-immune groups to various strains of disease organisms, and disease carrying individuals in such movements give opportunity for local insect vectors to pick up infections and pass them on to others. The very concentration of heterogeneous groups as occurs in military operations is conducive to the transmission of disease from man to man by insect vectors. Furthermore, opportunities for the production of insanitary conditions favorable to the propagation of insects are multiplied under war conditions and the men have less chance of protecting themselves and their food against insect attack and contamination. Ready means of transfer of infected insects from place to place are also provided.

The principal insect-borne diseases of military importance in wars of early times were plague, typhus, cholera, typhoid, dysentery, yellow fever, and malaria. Some of these are not disseminated solely by insects, but under the insanitary conditions that usually prevailed in military operations of bygone days insect transmission assumed relatively greater importance. Even today these diseases are a constant threat despite the advances in preventive methods through the use of immunizing agents. I think it is safe to assert that the present world conflict, with its shifting of armies from continent to continent and from hemisphere to hemisphere, with its rapid transport of the injured and diseased from one quarter of the globe to another, would have resulted in a world disease cataclysm had it not been for our advanced knowledge of preventive medicine.

The attainment of our satisfactory

position in regard to the prevention and control of these scourges has been the result of effective teamwork on the part of scientists and physicians of diversified training and experience. Contributions have been monumental in the fields of bacteriology, protozoology, chemistry, physiology, toxicology, engineering, entomology, and many others. To those who have made notable contributions to this advance the world owes a lasting debt of gratitude. Results of their labors are not felt in wartime alone, but serve civilization through years of peace and prosperity, and those of depression and travail, when ill health adds pain to the burdens of poverty.

LICE AND TYPHUS AND THEIR CONTROL

The entomological problems of World War II are similar to those of previous wars. Their potentialities, as indicated, are, however, greater because of the far-flung fighting forces and rapid transportation. Through research and its application, and through the proper adaptation of experience, potential epidemics have been promptly quelled. One of the outstanding examples of this is the control of the threatening outbreak of epidemic typhus in Naples after the liberation of that city by Allied forces. That striking result was obtained by effective organization and energetic application of control measures instituted by the army in coöperation with the U. S. Typhus Commission. Those control measures were fortunately made available by research on typhus vaccines by the National Institute of Health and other institutions, and through the discovery, by the Swiss firm of Geigy, of the insecticidal value of DDT. That discovery would have meant little had it not been for research carried out by E. F. Knippling at the Orlando laboratory of the Bureau of Entomology and Plant Quarantine, Dr. H. O. Calvery of the Food and Drug Administration,

Dr. Paul A. Neal of the National Institute of Health, and their associates, who adapted this insecticide to the particular needs of the Army in destroying body lice, and proved its safety.

Many others played a part in providing background for this outstanding accomplishment. Among these might be mentioned the chemical engineers who rapidly developed in the United States methods for producing DDT and facilities for large-scale production, the several government agencies who accelerated the production program, and the Army organization that placed the material promptly in the hands of those who carried out the actual field work.

The adaptation by entomologists of the Bureau of Entomology and Plant Quarantine of methyl bromide fumigation to present military needs places in our hands an added defense against lice and the diseases they carry. An exposure of infested garments to methyl bromide for only 45 minutes in a special fumigation bag or chamber gives a complete kill of all lice and their eggs. This method is especially useful in delousing prisoners of war.

It is difficult to foresee just what additional typhus problems may be encountered during the war or in the unsettled post-war period. It is likely that next winter will bring new outbreaks of this louse-borne disease, both among armies and among civilians. It is safe to say that with our present defensive weapons against epidemic typhus in hand, our own military forces are not likely to suffer seriously in any event, nor would there appear to be any valid reason for the occurrence of widespread outbreaks of the disease among civilians. Eradication of human lice is the solution of this disease problem and with DDT insecticides available it is an easy and practical one. Head lice and pubic lice may also be eliminated through the proper use of this material.

SCRUB TYPHUS, MITES, AND TICKS

A rickettsial disease known as scrub typhus, or Japanese river fever, is causing some concern. This disease occurs in the Southwest Pacific area and extends northward into Japan. Although mortality caused by certain local strains of the disease is high, it is not regarded as a disease of much military importance. Scrub typhus is related to Rocky Mountain spotted fever and other typhus diseases. It is carried by mites similar to the common chiggers, or red bugs, of our southern states. Certain insecticides properly applied to the clothing prevent the mites from attaching to the skin and should largely prevent the disease. The mites concerned are in the first, or larval, stage and normally attach to and engorge upon rodents. Subsequent stages do not attack man or animals but are scavengers. The clearing away of grass, underbrush, decaying wood, and humus from around camps causes the mites to disappear in a short time and thus reduces the chance of infection. The destruction of the mites near the soil surface may be brought about by burning over the areas or presumably by applying fine sulfur as a dust, as has been found valuable in chigger control in this country.

Scabies, or itch, has not been a serious problem in this present war but it must be dealt with in all large-scale military operations. Infestations of scab mites are continuously present among civilian populations, especially in European countries, and the close association of large groups of men in training and combat gives opportunity for the infestations to spread and become more severe. As a result of research on this problem, new, quick acting, and practical remedies have been developed and put to use.

Ticks are important carriers of disease but they have not come into prominence in this respect among our

military personnel. They have proved very annoying, especially as a result of the attack by large numbers of seed ticks and nymphs to troops on maneuver. Such tick-borne diseases as Rocky Mountain spotted fever, tularmia, and relapsing fever apparently have not come into prominence anywhere during the war. The recently recognized disease known as Bullis fever, a few cases of which occurred among troops near San Antonio, Tex., is probably induced by the lone star tick, which is abundant in that area. It cannot be regarded as of military importance.

FLEAS AND DISEASE

Fleas are often the subject of jokes but their potentialities as annoyers and disease carriers cause them to be regarded seriously by the informed. The penetrating flea, or chigoe, of tropical Africa and America is able, through its habit of burrowing into the feet of man, seriously to handicap infested individuals. Care in keeping the bare feet off infested ground largely prevents infestation, and little trouble has been experienced by our troops.

The common occurrence of human and dog and cat fleas in North Africa gave rise to much annoyance and complaint and demonstrated the value of the MYL louse powder for protection against those pests.

Bubonic plague and the fleas that transmit it are widespread in present war theaters, but to date the disease has not been an important military problem. Plague still constitutes a serious threat in eastern Asia, especially to civilian populations. The problem also deserves continued watchfulness on the part of the military, and the adoption around military installations of vigorous rodent control operations and every other precautionary measure.

Endemic typhus transmitted by rodent fleas, although a potential prob-

lem among troops, has not been given a chance to cause trouble in our training camps in the South where the disease is prevalent.

MOSQUITO-BORNE DISEASES

The mosquito-borne diseases, malaria, dengue, and filariasis, are major problems in World War II, as would be expected. At no period in world history have the forces of any nation been subjected to exposure to these diseases under so many different conditions. This means bringing large groups of non-immunes into contact with many different strains of the maladies and with a large number of insect vectors of divergent breeding and biting habits. Furthermore, little sound information was available regarding the diseases and insect carriers in many of the fields of operation. For example, in Guadalcanal, New Britain, New Guinea, Halmahera, and adjacent islands, our forces were truly plunging into the unknown. It was soon realized that disease was a more formidable enemy than the Japs and that without effective control of disease the outlook for early defeat of the Japanese was indeed gloomy. Experience in the early campaigns was not too encouraging, but as the operations proceeded, the results of research in preventive medicine and the results of early experience were brought to bear squarely on the several problems, and infection and incapacitation were rapidly lowered. In these respects we appear to have a distinct advantage over our adversaries.

The possession of effective drugs, mosquito repellents, mosquito larvicides, and other devices for protection against mosquitoes, in addition to a knowledge of drainage methods and organization, equipment, and supplies for putting these measures into effect, permit us to face the future with confidence. Perhaps one of our greatest dangers is

overconfidence. A very low malaria rate and scarcity of mosquitoes encourages relaxation of discipline; and certainly discipline is a big factor in the prevention of disease among troops. The dissemination of information regarding insect-carried diseases and their prevention is deemed of paramount importance since the success of such prophylactic programs is so largely dependent on the intelligent cooperation of the entire personnel.

Research work by entomologists and chemists of the Bureau of Entomology and Plant Quarantine in the field of mosquito control has netted splendid results in the present war. Years of work in the development of insecticides and ways of applying them, biological studies of mosquitoes and related forms, and work in the identification and classification of mosquitoes have furnished an unexcelled foundation for more intensive research. Some of this research had progressed to a point where the results could be taken advantage of by the military almost at once. One of these products of research by L. D. Goodhue and W. N. Sullivan which have proved of inestimable value is the method of applying insecticides in aerosol form. Through the cooperation of military authorities and commercial groups, the aerosol bomb has been made available in every overseas camp where disease-carrying mosquitoes are to be found. The bombs have also served a highly useful purpose in destroying dangerous insects in aircraft and ships in which they might be introduced into this country or scattered beyond their normal range in other countries.

Likewise the experience gained in the use of aircraft in applying insecticides and the equipment and insecticides developed for that purpose gave a substantial basis for the use of airplanes in combating mosquitoes and other insect pests of military importance.

The Bureau of Entomology and Plant Quarantine with funds provided by the Office of Scientific Research and Development and at the request of the Office of the Surgeon General of the Army initiated an intensive program of research looking toward the development of more effective repellents and other devices for the protection of troops from mosquitoes and other dangerous insects, and for the development of mosquito larvicides. As a result of this work three materials harmless to man and reasonably effective in repelling insects have been adopted and widely used by the Army and Navy. These findings have been an important factor in reducing the incidence of mosquito-carried diseases and they will doubtless play a still larger part in this respect in the future. The results of this research have been put to practical use in a very effective way in training camps and war theaters by the Medical and Sanitary Corps of the Army and the Medical Corps of the Navy.

The question is continually arising as to the danger to this country from the introduction of new diseases or strains of disease organisms with returning troops, or of the danger of accidentally bringing new insect vectors into this country. These questions are receiving the attention of the various government agencies involved, and certain safeguards are being adopted. The application of some of the procedures for insect control already referred to should do much to minimize these dangers.

FLIES AND DISEASE

Flies are recognized as an almost universal problem in military operations. There are many kinds with diverse habits. Some breed in cadavers, others in garbage, and still others in excrement. Nearly all may be concerned with the transmission of disease organisms. Since the development of

effective protection against typhoid by immunization, dysentery is the most important of these.

The general adoption of approved methods of manure and garbage disposal has done much to reduce fly abundance, and the protection of food from flies is of great importance in the prevention of enteric diseases. During the period immediately following occupation by our forces, blowflies are frequently found in abundance in areas previously held by the Japs. These emanate from the bodies of enemy dead, from exposed food supplies of the enemy, and from their insanitary camps. These conditions are promptly corrected by disposal of breeding material, by the use of insecticidal sprays, and by properly constructed and baited traps. When DDT is available in adequate quantities its use as a residual spray will doubtless assist greatly in reducing the danger of food contamination from flies of all kinds.

BEDBUG CONTROL

Bedbugs, although of little or no importance in the transmission of disease, are a source of much annoyance and, if abundant, lower troops' efficiency and adversely affect morale. These pests are so easily introduced into camps and multiply so rapidly that they not infrequently become a troublesome problem. Frequent thorough inspection of barracks and prompt treatment of minor infestations are the recommended practices. Thorough spraying of beds, including mattresses, with an insecticidal solution of DDT gives a complete kill, and protects against reinfestation for a period of months. The bedbug-proofing of mattresses by impregnation

with DDT insecticides of the covering in the process of manufacture appears to be sound.

Blanket impregnation would also aid in controlling these pests, and such treatment would incidentally protect the blanket against clothes moth and carpet beetle attack.

The importance of insects as carriers of diseases of military importance was fully recognized by the Surgeon Generals of the Army, Navy, and Public Health Service, and machinery was set in motion, even before we entered the war, to deal effectually with them. Information on the distribution and disease-transmitting potentialities of insects in different theaters was assembled, control methods were evaluated, and steps were taken to fill gaps in our knowledge. Thus through the Office of Scientific Research and Development of the National Defense Research Council research projects were provided for in the Department of Agriculture and various institutions, and the information was rapidly conveyed to our military authorities and those of our Allies. The results of this teamwork speak for themselves. The incidence of malaria, although high in some areas in early campaigns, has been brought to a commendable low; typhus outbreaks have been avoided; and typhoid, plague, and yellow fever, which have been determining factors in other wars, have been banished from our armed forces. Further reduction of sick rates from dengue, dysentery, and malaria are being striven for and may be expected as the development of more effective control measures proceeds and as they are put into operation in the field.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 35

April, 1945

Number 4

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ALTON S. POPE, M.D.

C.-E. A. WINSLOW, DR.P.H.

SHALL WE DECLARE WAR AT SAN FRANCISCO?

THE forthcoming conference of the United Nations at San Francisco is not to be merely a Peace Conference. It will deal with the cleaning up of the confusions and tragedies of the past; but also with planning for the future. Its emphasis will be positive, rather than negative. Its purpose is not to make peace with Germany and Japan; but—on behalf of all peoples of good will—to declare war against war, war against selfish and aggressive nationalism, war against injustice and exploitation, war against political and economic chaos.

Among other things it is our confident hope that it will declare a new and intensified war against disease.

There is no field where international coöperation is easier or more obvious than in the war against disease. Furthermore, from the notably successful career of the Health Section of the League of Nations, we know almost exactly what type of international health organization is needed. We can blueprint the desirable machinery with confidence and reasonable completeness. We are not thinking in terms of any Global Super-Health-Department, but of a sort of General Staff, for the coördination of the results of research and of administrative practice in the field of public health, for the interchange of epidemiological intelligence, for aid in the training and distribution of sanitary personnel, for placing the best available expert service at the disposal of those nations who desire assistance in solving the urgent health problems of the post-war world.

The backbone of such a health organization must be its Secretariat. This need not be a large body and may be thought of at first in terms of scores rather than hundreds of experts. These experts must, however, be of high professional standing and of full loyalty to ideals of international service, under a Director of the finest quality. The Secretariat should—as in the case of the League of Nations—work under general policies laid down by a Health Committee of fifteen to twenty members, chosen as individuals on the ground of their special competence.

Finally, the Health Organization should have the aid of an Advisory Council made up of the heads of all national health services of the United Nations, to be convened once a year for criticism and advice.

In one respect, the League machinery should be modified, by the inclusion of definite provisions for regional health organizations. The lack of decentralization was perhaps the most serious defect of the Geneva covenant. We have in the Pan-American Sanitary Bureau an established and functioning regional organization for the Americas which must be tied into the United Nations program; and similar regional machinery should be set up for other continents or (in the case of Africa) parts of continents.

This is, in general, the type of Health Organization needed for the World War against disease. We trust that the United States delegates at San Francisco will make such an organization an integral part of their program.

THE HILL-BURTON BILL

SENATE BILL 191 "To amend the Public Health Service Act to authorize grants to the States for surveying their hospitals and public health centers and for planning construction of additional facilities, and to authorize grants to assist in such construction" is one of the measures now before the Congress which is of vital interest to all public health workers. Its aim is a threefold one: to inventory existing facilities, to develop programs which will insure "the necessary physical facilities for furnishing adequate hospital, clinic and similar services to all of the people," and to aid, through federal grants, the construction of such physical facilities as may be necessary to develop such a program.

The operation of the plan is placed in the hands of the Surgeon-General of the U. S. Public Health Service under the general guidance of a Federal Advisory Council, and payments shall, in general, be made to the state concerned—after approval of any specific project. Payments may, however, be made directly to an institution desiring aid for a needed project if the state is not authorized by law to make payments to the applicant in question. This will make possible aid to private institutions, particularly those supported by religious bodies.

Any such measure as this obviously requires very careful study as to administrative detail. The Association was represented at hearings on this bill held in February by Dr. Reginald M. Atwater, who made certain important concrete suggestions in regard to the constitution and powers of the Advisory Council, the importance of financial participation by the states themselves, the need for emphasizing the health center features of the bill and other details which, we trust, may receive favorable consideration.

In general, the Hill-Burton Bill has received wide support from hospital, health, and medical authorities. It appears to be favorably regarded by Congressional leaders, except the band of die-hards who are still living in the 18th century. The Bill has been found by the Executive Board of the A.P.H.A. to be in reasonable conformity with Recommendation IV* of the official policy of our Association adopted last fall. It should, in principle, receive the support of the public health professions.

* A.J.P.H., 34, 12:1254 (Dec.), 1944.

HATS OFF TO THE CENSUS BUREAU

THE original purpose of the Vital Statistics Division of the U. S. Bureau of the Census was to furnish the basic vital statistics which are so fundamental for the measurement of population changes and public health progress. The passage of social security legislation has emphasized the need for vital records as documents required to establish facts concerning the status of individuals. The use of such documents for both employment and security purposes has been greatly extended during the war and promises to be expanded further by legislation relating to dependency and allowances for various purposes. During the past five years, the Vital Statistics Division has notably increased its technical staff and broadened its consultive program.

The principal statistical achievements of the Division in the last five years revolve largely around special work of a statistical nature made possible during the 16th Decennial Census, and in the development of a program for the analysis of the data obtained. These studies include a nation-wide survey of hospitals and their facilities, the findings of which have proved to be of great value during the war period in the planning for adequate hospital facilities; a volume of mortality summaries which put forth in small packages convenient for use by doctors and public health workers the statistics by cause of death and by age groups; a Rate Volume summarizing the important vital statistics rates from 1900 to 1940; a nation-wide test of birth registration completeness; and several studies on the significance of changes in the *International List of Causes of Death* classification. Two other important statistical advances not tied so closely with the decennial census are: the transfer of the statistics from a place-of-occurrence basis to a place-of-residence basis, and a considerable development in the division's work along the lines of international statistics. In the international field, the division has coöperated, and is still coöperating, with the Latin American republics by providing technical consultants to aid the development of vital statistics programs in those countries. Also, a number of fellowships have been granted to qualified Latin Americans for training in vital statistics work in the United States.

The greatest achievement of the past five years has, perhaps, been the progress made, through coöperation between the states and the federal government, in furthering the correlation of all agencies dealing with vital records and vital statistics into a strong and coöordinated system. A "Council on Vital Records and Vital Statistics" has been formed, made up of nine state registration executives (including two representatives of the American Association of Registration Executives and seven regionally-elected delegates) and two members of the federal bureau. This council met on November 28-30, 1944, and prepared an admirable "Plan for the Coördination of Vital Records and Vital Statistics in the United States." The Vital Statistics Division of the Bureau of the Census plans to implement in every way possible the work of this Council on Vital Statistics and Vital Records in bringing about a better coöordinated system for the country. Along statistical lines its goal is to improve the birth and fertility statistics of the division so that they compare favorably with the work now being done on mortality; to expand its international vital statistics program; to sponsor the development of small-area statistics; and to promote an interrelationship of vital statistics with population and social statistics.

Other current activities of the Bureau of the Census are related to a new and particularly important problem, that of the proposed "basic statistics program" including reconversion statistics. In August, 1944, the President requested the Bureau of the Budget to secure "accurate and comprehensive information concerning industrial production, the status of industry, and the well-being of the nation's workers." The interdepartmental program which was developed to implement this request involved the assumption of heavy responsibilities by the Bureau of the Census, including the expansion of the *Monthly Report on the Labor Force* to provide current estimates for geographic regions, the principal states, and the major production areas, and participation in consumer income studies for 1944 and 1945 income, the data for which are to be obtained through surveys of representative national samples of rural and urban households.

It is proposed to conduct an annual sample census of population, beginning in April, 1946, designed to provide current statistics on the number and characteristics of the population for states and for cities down to 100,000 inhabitants. Information from such a census, together with quarterly information from an expanded monthly report on the labor force, and the proposed income surveys would make available unparalleled current statistics on the distribution and characteristics of the population, marital status, family composition, and internal migration. The availability of such current population information would have important implications for vital statistics, in that it would permit the computation of current fertility, mortality, and morbidity rates for both the nation as a whole and its major subdivisions.

The public health profession owes a debt of gratitude to Director J. C. Capt and other officials of the Bureau of the Census for the breadth of vision in its program development, and, particularly, to Dr. Halbert L. Dunn for his able and coöperative direction of the Vital Statistics Division of that bureau.

ORGANIZED LABOR BECOMES INCREASINGLY HEALTH CONSCIOUS

WE referred in this column a year ago to the importance of organized labor as an ally in the public health movement; and to the material prepared by the N.T.A. to further progress in this field.¹ Recent advances on the Pacific Coast indicate how valuable such an alliance may be.

Theoretical interest in public health on the part of organized labor is no new thing, but theory has only recently been translated into effective action. The A. F. of L., as early as 1909 endorsed a broad health program, including not only industrial health and safety but "facilities for protecting individual and family health" and "knowledge of hygiene and sanitation." It emphasized the benefits of desirable and necessary improvements in length of life, accelerated growth in population, increased comfort, earning power, and efficiency. The Health Center maintained by the International Ladies' Garment Workers Union of New York City has performed valuable services on the local level.

The C.I.O. and many of its constituent unions have been keenly aware of the importance of more adequate health service and of the need for a closer link between public health activities and provision of individual medical care. Several locals have organized health committees or health divisions. In certain instances,

unions have developed their own health service programs, sometimes including prepayment plans. Significant among these is the "Health Institute" (actually a clinic for the diagnosis of compensation cases) established by the United Automobile Workers in Detroit. This institute has a staff of physicians operating under a Medical Advisory Board which includes three members delegated by the U. S. Public Health Service. The Institute has grown substantially, and last spring purchased the former residence of Edsel Ford for remodeling as its clinic.

The most outstanding example of progress in this field is the Northern California Union Health Committee which represents both A. F. of L. and C.I.O. unions in the San Francisco Bay area. This organization grew out of a Health Conference held in January, 1944, which outlined a program involving four main elements: nutrition, public health, industrial safety, and health insurance. The committee has been aided financially by the Rosenberg and Columbia Foundations and by contributions from tuberculosis associations during its demonstration period; but it is expected that it will ultimately be supported by the unions concerned. The able Executive Secretary of the committee is Mrs. Marianna Packard, San Francisco (a member of the A.P.H.A.). The friends of the movement are kept informed of its progress through a monthly *Newsletter*.²

The achievements of the Union Health Committee in its first year of operation are truly astounding. Aside from primarily political action (in support of the Bulwinkle Bill and of federal and state health insurance programs, for example) it has already carried on five enterprises of major importance.

Working with the City Health Department and the Tuberculosis Association, it has carried out a mass health examination program among the members of three waterfront unions which included x-rays and Wassermann tests of 3,650 men and women, which has since been extended to other union groups.

It has conducted, at the request of the culinary unions, a city-wide drive for the improvement of restaurant sanitation, correlated with accelerated inspection by the City Health Department staff.

It persuaded the Health Department to make a special survey of the San Francisco Embarcadero district from the standpoint of adequacy of feeding facilities and in coöperation with the longshoremen's and warehouse-men's unions, and the War Food Administration prepared a serviceable plan for improving facilities of this kind in the waterfront district.

In the field of industrial hygiene, the Union Health Committee has made a canvass of labor-management committees with regard to existing safety programs and their effectiveness; it is preparing a safety code for rigging, a process not heretofore covered; it is stimulating the organization of shop steward safety committees, not to serve as grievance committees but as coöperators with management. The committee will "work to know where to turn for technical assistance, what agencies set standards, what part labor and management play in setting standards, what determines whether they are being followed, and where responsibility lies for maintenance and enforcement of safety standards."

Finally, in view of the shortage of physicians in the Richmond area, the committee (on the request of an official agency and of a large union group) made a comprehensive evaluation of needs and resources, and after holding meetings and providing for publicity, held a joint conference with representatives of the City Council, the local health departments, the medical society and the War Manpower Commission which resulted in a program for strengthening a local Emergency Medical Center, and promoting its more effective use.

This is a remarkable record for twelve months. Obviously such achievements must be dependent on unusual qualities of local leadership. The health officer who may find such leadership in his local unions would do well to take advantage of it.

REFERENCES

1. Organized Labor, a New Ally for Public Health. Editorial, *A.J.P.H.*, 34, 3:280 (Mar.), 1944.
2. Northern California Union Health Committee, 57 Post St., San Francisco 4.

LETTER TO THE EDITOR

TO THE EDITOR:

In respect to your editorial challenge in the January JOURNAL, that Baltimore had the first Board of Health in the United States, "or any other country," may I submit the following: "By royal decree of the Spanish Crown in 1768 the Provincial Board of Health of the Province of Puerto Rico was created. The Board was composed of the following members: The Governor General, Secretary of the Treasury, Senior Naval Officer, Vice-President of the Provincial Commission, Mayor of San Juan, Secretary to the Governor General, Inspector General of Public Works, President of the Sub-delegation of Medicine, President of the Sub-delegation of Pharmacy, Director of the Quarantine, City Engineer of San Juan, three physicians, one pharmacist, one lawyer, one representative to the Spanish Courts, the Chief Medical Officer of the Army and a veterinarian. The Board had a secretary and an executive committee."

This information was secured in 1930 from Documents shown me in the Insular Department of Health. I was told that a distinguished historian of the University of Puerto Rico (name I have forgotten), who had made extensive research of the old official Spanish records at Madrid of the history of Puerto Rico, had confirmed the above statement concerning the creation of the Provincial Board of Health.

Dr. A. Fernos Isern, Commissioner of Health, gave me an interesting account of the first vaccination against smallpox campaign in 1803, seven years after Jenner's discovery. "Francisco Oller, M.D., Chief Military Surgeon of the port of San Juan, was influential in the importation, from our neighbor island of St. Thomas, of a negress with vaccine pustules in both arms. The method of vaccination had been introduced into St. Thomas shortly before. Dr. Oller vaccinated 1570 persons in 23 days, and stemmed the tide of an epidemic of smallpox which then ravaged the Island."

"A year from that time Francisco Javier de Balmis, M.D., honorary physician to the Royal Family at Madrid, arrived at Puerto Rico at the head of an expedition organized by the order of King Charles IV, entrusted with the introduction of vaccination into the overseas Spanish Provinces. Puerto Rico was one year ahead of the distinguished expedition."

It is my understanding that this Board of Health has been in continual operation since it was first organized in 1768, although under several different forms and names. My conclusions of these studies are briefly stated in my report "Puerto Rico, an inquiry as to the health of children," on page 35 as follows: "This evolution (Board of Health) was not accomplished without

legislative mistakes and political interference as is often observed elsewhere, even under more favored surroundings; yet through the years of trial and error, there has been a leadership with vision . . . until today (March, 1930), the Insular Department of Health has a merited professional standing equal to the better Health Departments in the United States."

The history of vital statistics was interesting, too, although unrelated to the Board of Health until 1884. "Alonso Manso, the first Catholic Bishop of Puerto Rico, established the parish registers in 1513. His order required that a record of all marriages, births and deaths be made in books especially designed for that purpose." As Puerto Rico was 100 per cent Catholic in those

days, the records were supposed to be quite complete; but unfortunately, in 1625, these priceless records were destroyed by the Dutch who captured San Juan and destroyed all public records.

In 1884, the King of Spain promulgated by decree the Spanish Civil Registry Law, which continued in force at the time of American occupation and until the Insular legislature passed an Act in 1911 to establish a law of Civil Register, now known as the Vital Statistics Law.

SAMUEL J. CRUMBINE, M.D.,
Jackson Heights, L. I., N. Y.
(Formerly General Executive,
American Child Health Association)

February 1, 1945.

THE ASSOCIATION COMMITTEE LISTS

The following pages again bring to the readers the lists of Association officers and Committee members. Once again they make a goodly company representing altogether more than 150 committees and other councils, a capable and loyal group of workers.

A certain proportion of the names of those formerly carried on such lists do not appear here. They have the Association's thanks for work well done in other years and for the fine spirit in which they have recognized the fact that, for the sake of the Association and its future effectiveness, leadership must be shared and leaders constantly developed through the assumption of responsibility. Our Association is stronger today because leaders periodi-

cally have stepped aside in order that others may step forward to acquire such knowledge as they themselves have gained.

Change in leadership is becoming an accepted policy in the Association. Such a professional society is never strong if an informed few lead many uninformed though loyal followers. A strong association is composed of leaders many of whom could at any time take their turn and lead.

As we gratefully acknowledge the debt to those who have rendered their service as they carried their responsibilities of office, we turn with hope and expectation of other achievements to the men and women who are now to lead.

American Public Health Association

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1944-1945

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 James E. Perkins, M.D., *Secretary*, State Department of Health, Albany, N. Y.
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 Representative from the U. S. Office of Education—not yet named

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Reginald M. Atwater, M.D., *Secretary*, 1790 Broadway, New York, N. Y.
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Clair E. Turner, Dr.P.H. (1945)

Consultant:

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Isabel Landy Fantel, *Associate Secretary*, 1790 Broadway, New York, N. Y.

Editorial Committee

William P. Shepard, M.D., *Chairman*, 600 Stockton Street, San Francisco, Calif.
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Wilson G. Smillie, M.D.

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Henry T. Scott, Ph.D., Wisconsin Alumni Research Foundation, Madison, Wis.

Standard Methods Committee on Biology of the Laboratory Animal

R. A. Kelsner, Ph.D.,* *Chairman*, Office of Surgeon General, U. S. Army, Washington, D. C.
Paul A. Moody, Ph.D., *Acting Chairman*, University of Vermont, Burlington, Vt.

*Associate Referees*²

Arthur M. Cloudman, Ph.D., Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me.
R. G. Daggs, Ph.D., University of Vermont, Burlington, Vt.
Ralph W. Mohri, D.V.M., Army Medical Center, Washington, D. C.
Gregory Pincus, D.Sc., Clark University, Worcester, Mass.
Norman J. Pyle, V.M.D., 335 W. Barnard Street, West Chester, Pa.
Paul B. Swain, Sc.D., Brown University, Providence, R. I.
George B. Wislocki, M.D., Harvard University Medical School, Boston, Mass.

Standard Methods Committee for Frozen Desserts and Ingredients (Joint with the Committee of Food and Nutrition Section)

Friend Lee Mickle, Sc.D., *Chairman*, State Department of Health, Hartford, Conn.
James Gibbard, Department of Pensions and National Health, Ottawa, Ont.

*Referee*¹ *for:*

Chemical Analysis of Frozen Desserts and Ingredients—J. H. Shrader, Ph.D., Eastern Nazarene College, Wollaston, Mass.
Microbiological Examination of Frozen Desserts—A. H. Robertson, Ph.D., State Department of Agriculture and Markets, Albany, N. Y.
Microbiological Examination of Ingredients—F. W. Fabian, Ph.D., Michigan State College, East Lansing, Mich.
Sediment Testing of Frozen Desserts and Ingredients—K. G. Weckel, Ph.D., University of Wisconsin, Madison, Wis.

*Associate Referee*² *for:*

Chemical Determinations of Modified Babcock Methods for Frozen Desserts—W. H. Martin, Kansas State College, Manhattan, Kans.
Chemical Determinations of Stabilizers in Frozen Desserts—F. Leslie Hart, Food and Drug Administration, San Francisco, Calif.
Determination of Overrun in Ice Cream—P. S. Lucas, Michigan State College, East Lansing, Mich.
Microbiological Examination of Condensed and Evaporated Milk—Paul A. Downs, Ph.D., University of Nebraska, Lincoln, Nebr.
Microbiological Examination of Dry Milk—Paul S. Prickett, Ph.D., Evansville, Ind.
Microbiological Examination of Eggs—M. Thomas Bartram, Ph.D., Food and Drug Administration, Washington, D. C.
Microbiological Examination of Flavors, Colors, Fruits, and Nuts—M. J. Prucha, Ph.D., University of Illinois, Urbana, Ill.
Microbiological Examination of Sugar—H. H. Hall, Southern Regional Research Laboratory, New Orleans, La.
Sampling for Chemical Determinations—P. H. Tracy, Ph.D., University of Illinois, Urbana, Ill.

Standard Methods Committee on Biological Products

Elliott S. Robinson, M.D.,* *Chairman*, 3034 South Buchanan Street, Arlington, Va.
Harold W. Lyall, Ph.D., *Acting Chairman*,

* In Active Military Service.

¹ Referees are members of the Standard Methods Committee upon which they serve.

² Associate Referees are not members of the Standard Methods Committee upon which they serve.

New York State Department of Health,
Albany, N. Y.

George D. W. Cameron, M.D., Dominion
Department of Health, Ottawa, Ont.

Robert D. Defries, M.D., 5 Cluny Drive,
Toronto, Ont.

Ralph S. Muckenfuss, M.D., 26 East 11th
Street, New York, N. Y.

John T. Tripp, Ph.D. (Major, U. S. Army—
overseas)

Milton V. Veldee, M.D., National Institute
of Health, Bethesda, Md.

Standard Methods Committee for Examination of Shellfish

James Gibbard, *Chairman*, Department of
Pensions and National Health, Ottawa,
Ont.

Chester T. Butterfield, U. S. Public Health
Service, Cincinnati, O.

Albert C. Hunter, Ph.D., Food and Drug
Administration, Washington, D. C.

C. B. Kelly, Jr., New York State Con-
servation Department, Freeport, L. I.,
N. Y.

C. A. Perry, Sc.D., State Department of
Health, Baltimore, Md.

Leslie A. Sandholzer, Ph.D., Technological
Laboratory, Fish and Wildlife Service,
College Park, Md.

Hermann Sommer, Ph.D., Hooper Founda-
tion, University of California Medical
Center, San Francisco, Calif.

F. W. Tanner, Ph.D., University of Illinois,
Urbana, Ill.

Charles E. Renn, Ph.D., Massachusetts State
Department of Health, Boston, Mass.

Standard Methods Committee for the Examination of Germicides and Antibacterial Agents

Stuart Mudd, M.D., *Chairman*, University
of Pennsylvania, Philadelphia, Pa.

¹ Referees are members of the Standard Methods Committee upon which they serve.

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Referee¹ for:

Chemical Antiseptics—Henry Welch,
Ph.D., Food and Drug Administration,
Washington, D. C.

Chemical Disinfectants—Charles M.
Brewer, U. S. Department of Agriculture,
Beltsville, Md.

Detergents—Walter L. Mallmann, Ph.D.,
Michigan State College, East Lansing,
Mich.

Associate Referee² for:

Antibiotic Agents—Selman A. Waksman,
Ph.D., Agricultural Experiment Station,
New Brunswick, N. J.

Disinfection of Air by Germicidal Vapors
and Mists—O. H. Robertson, M.D.,
University of Chicago, Chicago, Ill.

Disinfection of Air by Ultra-violet Irradia-
tion—Alexander Hollaender, Ph.D., Na-
tional Institute of Health, Bethesda,
Md.

Fungicidal and Fungistatic Agents—C. W.
Emmons, Ph.D., National Institute of
Health, Bethesda, Md.

Suppressive Measures for the Control of
Dust—Major Clayton G. Loosli, M.C.,
Army Service Forces, Board for the
Investigation of Epidemic Diseases, 950
East 59th Street, Chicago, Ill.

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Edmund K. Kline, Dr.P.H.

Malcolm H. Merrill, M.D.

Laboratory Section Archivist

Anna M. Sexton, State Department of
Health, Albany, N. Y.

Laboratory Section Representative on the Commission for the Study of Biological Stains

William D. Stovall, M.D., State Laboratory
of Hygiene, Madison, Wis.

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 Edward Wright

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Laboratory Section
 Chester T. Butterfield

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Warren J. Scott, *Chairman*, 34 Garfield Road, West Hartford, Conn.
 Bernhard P. Domogalla, Ph.D.
 Chauncey A. Hyatt
 Thomas M. Riddick

Advisers:

Laboratory Section
 Walter L. Mallmann, Ph.D.

Epidemiology Section
 Ralph E. Wheeler, M.D.

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J. H. Shrader, Ph.D.

K. G. Weckel, Ph.D.

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Henry T. Scott, Ph.D., *Chairman*, Wisconsin Alumni Research Foundation, Madison, Wis.

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Paul L. Day, Ph.D.

Conrad Elvehjem, Ph.D.

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Elmer M. Nelson, Ph.D.

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J. A. Keenan, Ph.D., *Chairman*, 1200 Fullerton Avenue, Chicago, Ill.

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J. O. Clarke

Marietta Eichelberger, Ph.D.

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Paul F. Sharp, Ph.D.

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Helen S. Mitchell, Ph.D., *Chairman*, 699 Forest Road, New Haven, Conn.

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Ralph E. Wheeler, M.D., *Adviser*

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Charles Street, Baltimore, Md.
Marjorie T. Bellows
Clara E. Councell
Marguerite F. Hall, Ph.D.
Iwao M. Moriyama, Ph.D.

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1925 Concord Road, Columbus, O.
Philip Drinker
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William J. McConnell, M.D.
Carey P. McCord, M.D.

II. Committee on Standard Methods for Examination of Air

Emery R. Hayhurst, M.D., *Chairman*,
1925 Concord Road, Columbus, O.
Philip Drinker
Leonard Greenburg, M.D.
William J. McConnell, M.D.
Carey P. McCord, M.D.
Stuart Mudd, M.D.
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Subcommittee on Dust Procedures

J. J. Bloomfield, *Chairman*, National Insti-
tute of Health, Bethesda, Md.
Theodore F. Hatch
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William F. Wells, *Chairman*, University of
Pennsylvania, Philadelphia, Pa.
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Henry Field Smyth, M.D., *Chairman*, 34th
Street at Chestnut, Philadelphia, Pa.
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Mellon Institute, Pittsburgh, Pa.
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East 69th Street, New York, N. Y.
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Children's Bureau, Washington, D. C.

Committee on Health Standards for Children's Camps

Milton I. Levine, M.D., *Chairman*, 302 West
12th Street, New York, N. Y.
Helen F. Leighty
L. B. Sharp, Ph.D.

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Department of Health, Lansing, Mich.
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versity of Michigan, Ann Arbor, Mich.
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Allen O. Gruebbel, D.D.S., *Chairman*, State
Board of Health, Jefferson City, Mo.
Raymond M. Walls, D.D.S.
James G. Williams, D.D.S.

School Health Section**Committee to Study School Health Legislation**

Ben W. Miller, Ph.D., *Acting Chairman*,
1201 Sixteenth Street, N.W., Washington,
D. C.
William E. Ayling, M.D.
Lillian B. Davis, Sc.D.
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Health Programs**

David A. Van der Slice, M.D., *Chairman*,
 1006 Kensington, Flint, Mich.

Isaac P. Barrett, M.D.
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C. Morley Sellery, M.D., *Chairman*, 1467
 Oakhurst Drive, Los Angeles, Calif.
 (Personnel to be appointed)

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Health Workers**

James G. Stone, *Chairman*, 1790 Broadway,
 New York, N. Y.
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Washington, D. C.
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local public health needs; to locate and publicize effective regional practices now in operation; to find regional resources; to develop materials and practices applicable to the solution of local and regional problems.

Committee on Public Health Education Problems in the Far West Region

Clair E. Turner, Dr.P.H., *Chairman*, 19 Village Lane, Arlington, Mass.

Membership:

All Fellows (10) and members (86) in the States of the Far West Region—Washington, Oregon, Nevada, California.

Committee on Public Health Education Problems in the Middle States Region

Jean Christopher, *Chairman*, State Department of Public Health, Springfield, Ill.

Membership:

All Fellows (41) and members (162) in the States of the Middle States Region—Minnesota, Wisconsin, Iowa, Missouri, Illinois, Indiana, Ohio, Michigan.

Health Education Problems in the Northwestern Region

J. D., *Chairman*, 418 San Antonio, Tex.

members (34) in the States of the Northwest Region—Arizona, Idaho, Utah, Wyoming, Colorado, Nebraska, North Dakota, Kansas, South Dakota.

the American Public Health Association to Other Organizations and Committees for 1945

Committee on Medical Education

Dr. Shepard, M.D.

Dr. A. Doull, M.D., alternate

American Association for the Advancement of Science

Reginald M. Atwater, M.D.

Abel Wolman, Dr.Eng.

American Committee on Maternal Welfare

Thomas Parran, M.D.

American Documentation Association (1943-1946)

Halbert L. Dunn, M.D.

American Hospital Association (liaison representative)

Charles F. Wilinsky, M.D.

Committee on Public Health Education Problems in the Northwestern Region

Edna A. Gerken, *Chairman*, 311 Chamber of Commerce Building, Denver, Colo.

Membership:

All Fellows (2) and members (42) in the States of the Northwest Region—Montana, Idaho, Utah, Wyoming, Colorado, Nebraska, North Dakota, Kansas, South Dakota.

Committee on Public Health Education Problems in the Southeastern Region

F. M. Hemphill, *Chairman*, 605 Volunteer Building, Atlanta, Ga.

Membership:

All Fellows (11) and members (101) in the States of the Southeast Region—Kentucky, Virginia, North Carolina, Tennessee, South Carolina, Arkansas, Florida, Mississippi, Alabama, Georgia, Louisiana.

Committee on Public Health Education Problems in the Northeastern Region

Charles E. Lyght, M.D., *Chairman*, 1790 Broadway, New York, N. Y.

Membership:

All Fellows (69) and members (312) in the States of the Northeast Region—Maine, Vermont, New Hampshire, Massachusetts, New Jersey, Rhode Island, West Virginia, Maryland, Pennsylvania, New York, Washington, D. C.

American Society of Civil Engineers and Federation of Sewage Works Associations—Joint Committee for Revision of the Report on Definition of Terms Used in Sewerage and Sewage Disposal Practice

Gordon M. Fair

H. A. Whittaker

American Society for Testing Materials—Committee on Soap

Carl R. Fellers, Ph.D.

American Standards Association

Building Code Correlating Committee (1943-1945)

J. Lloyd Barron, C.E.

W. Scott Johnson, alternate

When the lamps were first

amount of visible light, therapy of the eye, and practically ceived of detrimental amount of visible light, lamps was low enough s, difficultly encountered with these lamps. The light people in the barracks sin moonlight.

- Letter Symbols and Abbreviations for
Science and Engineering
Earle B. Phelps
- Safety Code for Dry Cleaning Establish-
ments
H. H. Schrenk, Ph.D.
H. G. Dyktor, alternate
- Safety Code for Exhaust Systems
Henry Field Smyth, M.D.
- Sectional Committee on Allowable Concen-
trations of Toxic Dusts and Gases
J. J. Bloomfield
- Sectional Committee on Bedding and Up-
holstery—Subcommittee on Sterilization
F. J. Maier
- Sectional Committee on Building Code Re-
quirements for Light and Ventilation
Rollo H. Britten
C.-E. A. Winslow, Dr.P.H.
- Sectional Committee on Minimum Require-
ments for Plumbing and Standardiza-
tion of Plumbing Equipment, A-40
and Subcommittee No. 1
M. Warren Cowles
Sol Pincus, C.E.
- Sectional Committee on Places of Outdoor
Assembly
J. Lloyd Barron, C.E.
- Sectional Committee on School Lighting
Leonard Greenburg, M.D.
Joel I. Connolly, alternate
- Sectional Committee on the Safety Code for
Industrial Sanitation in Manufacturing
Establishments
Leonard Greenburg, M.D.
Kenneth E. Markuson, M.D., alternate
- Ventilation Code
Earle B. Phelps
- Commission for the Study of Biological Stains
William D. Stovall, M.D.
- Council on Rheumatic Fever
David Rutstein, M.D.
George M. Wheatley, M.D.
- Joint Committee on Definition of Terms Used
in Water Works Practice (Joint with the
American Society of Civil Engineers and
the American Water Works Association)
Earle B. Phelps, *Chairman*
Sol Pincus, C.E.
Ralph E. Tarbett, C.E.
- National Conference for Coöperation in School
Health Education
Ira V. Hiscock, Sc.D.
- (Revision of Report on School Health
Policies)
Dorothy B. Nyswander, Ph.D.
- National Congress of Parents and Teachers—
Advisory Committee on Health and Sum-
mer Roundup of Children
Dorothy Mendenhall, M.D.
- National Council on Rehabilitation
Don W. Gudakunst, M.D.
- National Conference on Uniform Traffic Acci-
dent Statistics
Robert J. Vane
- National Health Council
Reginald M. Atwater, M.D.
Louis I. Dublin, Ph.D.
Ernest L. Stebbins, M.D.
- National Nutrition Advisory Committee
Robert H. Riley, M.D.
- National Safety Council—Home Safety Ad-
visory Committee
Edward S. Rogers, M.D.
- Film Safety Awards Committee
Harry E. Kleinschmidt, M.D.
- National Technological Civil Protection Com-
mittee
Abel Wolman, Dr.Eng.
Arthur E. Gorman, alternate

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

All books reviewed in these columns may be purchased through the Book Service.

Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases—
By Richard P. Strong, M.D. (7th ed.)
2 Vols. Philadelphia: Blakiston, 1944.
1827 pp. Price, \$21.00.

This is the stuff of which public health practice and personal preventive medicine is built. If what is here so admirably presented were put to its logical and complete use by each physician in his personal rôle as diagnostician and therapist and by the medical officers of civil and military government with their authority under the law and their resources for education and administration, the face of the world and the outlook upon it by mankind would be immeasurably brightened from pole to pole.

This book from the mind and hand of Admiral Stitt, rewritten and several times reëdited by Dr. Strong, has since its first appearance in 1914 been an essential companion for every physician wishing to practise the medicine of science in the tropics of our world. The present and seventh edition has kept pace with the swift advances of recent discovery and invention for the distinguishing of a multitude of obscure and rare diseases and their appropriate treatment and, within limits, their prevention.

In its new two volume form we have a condensed encyclopedia rather than a text or reference book, a manual for immediate and practical use rather than a monographic series of descriptions. The eighteen hundred pages, liberally illustrated, packed with supplementary discussion in small type and offering adequate references at the end of each

chapter, offer a systematic discipline in this field of medicine for student or teacher, practitioner of medicine or public health, devotee of the basic sciences or administrator of civil or military affairs.

The pattern of presentation is quite uniform and includes the necessary fields of information. Definition, geographical distribution, prevalence, etiology and epidemiology, transmission, pathology, symptomatology, prophylaxis, and treatment follow in logical sequence under each disease, with the main text in clear large type and subordinate, discursive, controversial or relevant matter of less importance in small type, such as is used for the references. These latter do not include all that are mentioned in the text, but are selected as the best or most productive for collateral reading and usually include one or more major articles of the year of publication, 1944.

Balance, sense of proportion, freedom from extreme or eccentric attitudes, fairness in presenting conflicting or opposite opinions, and data still disputed on matters of etiology, treatment and epidemiology, characterize the text throughout. Particular emphasis is given to preventive, environmental, administrative and social aspects of "diseases which occur commonly or most frequently in tropical countries, although many of them are encountered from time to time, and some are even endemic in countries with temperate climates."

To the epidemiologist of today, the paragraphs under this heading will appear too limited in scope and subject matter for entire satisfaction, but a

little hunting under the headings of history, distribution, and prevalence usually reveals the information commonly dealt with under epidemiology.

It must be assumed that both author and publisher were under unusual pressure of the international military emergency to get the rewritten text in print and circulation among the medical officers of our own forces in particular. Only such presumption of need for haste can excuse the considerable number of errors of expression and spelling in the text. Proofreading has been inadequate for a good level of scholarship. Even a reviewer lacking time for the reading of every line or page discovers such lapses as: "This ratio was especially probably due to the fact . . ." (p. 343); succrose, which needs but one c (p. 566); "serum of tubercular subjects," when the adjective tuberculous is correct (p. 792); "bacterial infection of food and drink," when pollution or contamination should have been used (p. 582); *Fracastoro* for *Fracastoro* (p. 927). Under arcariasis "The most severe injections are encountered" referring to infections, p. 1221; L. oa. instead of *Loa loa*, p. 1337; kerosene immersion instead of emulsion, p. 281; Carribbean instead of Caribbean, p. 1253; neoartic instead of nearctic when referring to the mosquito *A. triseriatus* (p. 881). In referring to 180 species of anopheles "only about 60 have been incriminated of transmitting human malaria," a crude and improper use of our language.

Fastness with respect to chemotherapeutic drugs is referred to under Kala azar, but in subsequent editions the reader will expect something more basic on this very important problem of selective specific therapy.

With all the meticulous exactness as to authorship and date and place of publication of the many references, it is surprising that when the cholera epidemic in London related to the famous

Broad Street pump is dealt with, Wm. Snow receives no mention or credit (p. 609).

In dealing with marihuana (p. 1202), the author follows the traditional teaching which may still be correct in the tropics, rather than the observations of pharmacologists and psychiatrists with experience in cities of U.S.A.

The volumes are sturdy, the paper and printing good, the illustrations mostly of high quality and useful to the teacher, the index, although not extensive, is adequate and its appearance in both volumes a real convenience. There is probably more factual, authoritative, immediately useful information per page in these two volumes on the diseases dealt with than can be found elsewhere.

HAVEN EMERSON

A Digest of the Literature on DDT—By R. C. Roark and N. E. McIndoo. Washington: U. S. Department of Agriculture, 1944. Publ. No. E-631. 53 pp.

The authors, working at the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture, have abstracted the information contained in the 174 publications listed in a bibliography on DDT that was issued in June, 1944. This remarkable product, which was synthesized by Zeidler in 1874, seems not to have been mentioned in the literature until 1942, when a British patent was issued on its production. Since that time the very wide notice which the product has had in the literature makes such a digest exceedingly useful.

According to this review, the insecticidal action of DDT is not universal; that is, while it is highly toxic to many species of insects, it is relatively non-toxic to others. The studies are by no means complete. Meantime this digest of the literature will be highly useful to interested persons.

REGINALD M. ATWATER

Trichinosis—By *Sylvester E. Gould, M.D., D.Sc.* Springfield, Ill.: Thomas, 1945. 322 pp., illus. Price, \$5.00.

This volume is no doubt an outgrowth of the author's own investigations and the increased interest in the public health aspects of this disease. The subject matter is divided into thirteen chapters dealing respectively with the history of the disease, the life cycle, its morphology and epidemiology, of trichinosis in lower animals, pathology, immunology, laboratory diagnostic methods, symptomatology, diagnosis, treatment, prognosis, and control. An extensive bibliography is included, while the 128 illustrations are excellently reproduced. Dr. Gould has drawn heavily on the literature for his information. This is of value for reference purposes but one wishes at times that he might have interpreted more of the data.

The excellence of the work leaves little opportunity for criticism. It would have added much of local interest if the epidemiology of the disease in the United States had been discussed at greater length. Likewise, the occurrence of clinical trichinosis in other countries is treated rather sketchily. The chapter on morphology, while adequate for the public health worker, would hardly satisfy the nematologist.

Since the book is suggested as being of interest to the veterinarian, swine grower, and meat packer, a discussion of the effect of trichina larvae of various methods of curing and smoking, particularly as related to meat inspection requirements, would have been of value. In connection with diagnosis, considerable emphasis is placed on the occurrence of subungual hemorrhages. It seems probable, however, that such hemorrhages do not occur in anything like 60 to 70 per cent of clinical cases. In fact, they were encountered in only 2 of 391 cases in an outbreak observed by the reviewer. Dr. Gould recom-

mends the use of a 1:100 dilution of antigen in the precipitin test, whereas experience indicates that the single tube method is deficient and may give misleading results. A more efficient procedure involves the employment of antigen dilutions varying between 1:60 and 1:1,280 or higher.

Issue might be taken with points of a more minor character, but the book is unusually free from error. It is the first good monograph on trichinosis since that of Stäubli in German in 1909 and should be of great value as a reference book to all who have occasion to deal with the subject.

WILLARD H. WRIGHT

Stream Sanitation — By *Earle B. Phelps.* New York: Wiley, 1944. 276 pp. Price, \$3.25.

Professor Phelps' book is of timely interest, because of the serious problems of stream pollution and its control with which the country will be faced after the war. As noted in the preface of the book, its subject material has been drawn largely from the studies carried out at the Cincinnati Station of the U. S. Public Health Service during a period of about 20 years beginning in 1914, when the work at that station was devoted mainly toward developing and elucidating the fundamental principles which underlie the pollution and natural purification of streams. The author has drawn a considerable amount of data from other sources as well, and has interpreted both these and the Cincinnati Station data from the standpoint of his own thought and experience on the subject.

In successive chapters, the book discusses the life history of a stream, the biology of growth and decay, the aerobic and anaerobic decomposition of sewage, the oxygen balance in polluted streams, and the public health aspects of bacterial pollution. The book closes with a chapter on stream microbiology

by Dr. James B. Lackey, Senior Biologist at the present Cincinnati Station of the Public Health Service.

The author's treatment of the subject is essentially fundamental in nature, especially as regards the phenomena associated with stream self-purification, to which a large portion of the book is devoted. Applications of theory and mathematical formulas are illustrated by ingenious examples and analogies, which lend added value to the book as a teaching medium. Although it is not, nor does it pretend to be, a comprehensive treatise on the subject, it has brought together in very readable form a large amount of basic information previously available only from manifold published sources. H. W. STREETER

Bibliographie d'Hygiene Industrielle—Washington, D. C.: International Labour Office, 1944. 167 pp. Vol. XIV. Price, \$1.50.

The latest contribution by the International Labour Office on industrial hygiene is a bibliography on this subject consisting of 2,620 references. These are intended to cover the literature on industrial hygiene for the year 1940, and are clear proof of the activity, interest, and rapid growth in this field.

It is unfortunate that this material is nearly five years old, since in an activity as dynamic as industrial hygiene many of the references are already old. This is especially true with regard to such live topics as the employment of women in industry and the exposures to some of the chemicals encountered in war industries.

The material is treated under such headings as physiology; industrial pathology; pathology by causes of injury by various substances such as metals, gases, vapors, infections, etc.; special pathology such as the dermatoses and silicosis; traumatic surgery; general hygiene; and social medicine and hygiene. In the reviewer's opinion,

the references could have been classified in a much simpler fashion, and were it not for the excellent author and subject index it would be somewhat difficult to find the desired references. Nevertheless, this volume is a distinct contribution to the literature on industrial hygiene, and should be of considerable aid to all those actively engaged in this field.

J. J. BLOOMFIELD

And Now to Live Again—By Betsey Barton. New York: Appleton-Century, 1944. 150 pp. Price, \$1.75.

Frequently the public health worker is distressed by the fact that the patient group with and for whom a part of his work is attempted is unresponsive. Apparent apathy, indifference, even resistance may be encountered. We are unlikely to replace these reactions with acceptance and coöperation until we know what goes on in the mind of the patient.

In this slender book, an unusually articulate patient presents a candid chronicle of her depression and frustration for years immediately following an accident which resulted in extensive spinal injury, and of her ultimate conquest of some of the problems of the disabled. Despite haphazard organization of material, the essential values of the story hold the reader's interest forcibly and steadily. The author has supplemented autobiographical material by faithful and frequently skillful reporting upon the progress of others in overcoming the handicaps imposed on them by physical disability. She achieves an ultimate continuity of inquiry into why one person persists and another gives up in the struggles for recovery and readjustment. She portrays not only what stimulated her own determination but factors which have encouraged some others.

The book may be recommended particularly to the clinician, the nurse, and

the medical social worker as a helpful interpretation of material seldom made articulate or accessible.

HOLLAND HUDSON

Postwar Planning in the United States: An Organization Directory—*New York: Twentieth Century Fund, 1944. 134 pp. Price, \$1.00.*

This Directory is the third in a series of surveys made by the Twentieth Century Fund, revealing that these postwar planning groups have increased from 105 in 1942 and 137 in 1943 to nearly 200 in 1944. Thirty-nine are government and 158 are private agencies. Seventeen of the total are in the welfare and health group. A brief digest is presented of the background, activities and personnel now engaged in postwar planning under each agency. The Directory can be recommended for its inclusive character. Each agency doing postwar planning should be aware of other agencies concerned with the same field.

REGINALD M. ATWATER

Aerobic, Non-sporing, Excretal Bacteria: A Synoptical Table of Biochemical Characters Arranged in Terms of Manipulative Procedure—*By Arthur Compton, M.D. Egypt: C. R. Soc. Med. et Hyg. Trop. d'Egypte, v. 8, 1943. 27 pp. and table.*

The table presents the cultural characteristics of 235 different species of aerobic, non-sporing, Gram-negative bacilli or coccobacilli in terms of fermentation characteristics in nine substrates, motility, gelatin liquefaction and action in milk media. These are divided into six groups; salmonella, faecalis alkaligines, dysentery, metadysentery, coliform and a group showing "mixed fermentations," labeled "giumaiform." The table is so arranged that three manipulative stages; enrichment, plating on Endo medium and transfer of individual colonies to

six simple broth media will supply the basic information for group separation. Additional manipulative stages are suggested for further differentiation and for study of phage-susceptibility and plaque formation.

In the accompanying text the author discusses the advantages of using such a table, points out some of the difficulties attending any method of classifying these organisms, mentions some technical refinements and recommendations, and warns against the use of agglutination reactions for accurate identification until more complete serological studies of the entire group have been made and mono-specific sera are more readily available.

Over 100 new strains of bacteria isolated from feces in the Central Municipal Laboratory at Alexandria between 1926 and 1943, all phage-susceptible, representing well defined biochemical and serological entities not described previous to isolation, are listed in the text and included in the table as "Alexandria" strains. Whenever possible, cross-reference is made in the table to names assigned similar strains by other authorities.

On the whole, this method of classification, stressing biochemical reactions and phage-sensitivity, differs from American practice, but the wealth of information in this comprehensive table and study offers much to interest any student of this complicated problem.

EDMUND K. KLINE

Mitchell's Pediatrics and Pediatric Nursing—*Revised by Robert A. Lyon, M.D., and Winifred Kaltenbach. (2nd ed. rev.) Philadelphia: Saunders, 1944. 504 pp., 97 illus. Price, \$3.00.*

"Miss Jones, massage bed 8 for the night." Twenty years ago such orders were commonly heard in the wards of busy hospitals. Times and techniques have changed and this second edition of Dr. A. Graeme Mitchell's text gives

evidence of the healthy change over the years in the methods of teaching the student nurse. The student nurse who uses this book as her text in pediatric nursing will not be expected—as of old—to do or die and not to reason why.

The authors have divided their work into six units: Normal Growth and Development, Nutrition, Children in the Home, Children in the Hospital, Abnormalities and Diseases, and Child Care in the Community. The student is first introduced to the normal growth, development and behavior of the average child as we find him in his home environment before she studies the abnormalities and diseases of childhood and the necessary nursing care and procedures involved. Throughout, the authors emphasize the importance of understanding the child as an individual as well as understanding his disease. This emphasis is highlighted by practical, sound suggestions illustrating methods the nurse can use in the hospital to help gain the child's cooperation for his treatments and to help him keep occupied through a happy convalescence.

The unit on Children in the Hospital stresses the responsibility the student nurse must assume in being alert to and using every opportunity to assist the child to adjust to the strange environment of the hospital. The student nurse is reminded constantly that the child should be prepared for whatever treatment or procedure may follow by explanations and reasons commensurate with his understanding.

In discussing behavior problems the point is made that "the nurse should think of him more as a child with a problem than a problem child." Also "the child who may be shy, impudent or otherwise unattractive, should challenge the nurse's ingenuity in learning the causes of his difficulty. . . ."

In teaching the various nursing procedures, the objectives to be gained and the reasons for the particular methods

used are stressed rather than the slavish following of standard techniques. It is refreshing, indeed, to read a text prepared for student nurses which takes for granted that nurses must learn to think, feel, and analyze, as well as to "do" as ordered. It is to be regretted, however, that the authors did not give more specific illustrations to keep the student nurse alert to opportunities of teaching personal and public health through her everyday procedures and contacts with her patients and their parents.

In several instances the authors have been far more optimistic than actual situations would warrant. For instance: "At present, the standards of milk production and distribution required by most boards of health are such that almost all market milk is safe." Or this statement: "Most hospitals now have the help of social service or visiting nurse departments which may arrange for the child's care at home." Alas, 'tis not so in either case as those of us in the wide open spaces so well know.

On the whole, this text should prove valuable to student nurses, not only for its content material on pediatrics, but because of its over-all suggestions concerning human relationships and attitudes of children, parents, and nurses in home and hospital.

HENRIETTA LANDAU

Clinical Practice in Infectious Diseases for Students, Practitioners and Medical Officers—By E. H. R. Harries, M.D., and M. Mitman, M.D., with a foreword by W. Allen Daley, M.D. (2nd ed) Edinburgh: E. & S. Livingstone, 1944. 570 pp. Price, \$6.00.

This book from Scotland is intended for students, practitioners, and medical officers, and is indeed an exceptionally valuable book for any medical person.

Besides chapters on the usual common contagious diseases, and some less common ones such as psittacosis and

infective jaundice, but omitting others such as influenza, tuberculosis, pneumonia, and the venereal diseases, it also has a number of chapters on diagnosis in general, on the transmission and on the control of infectious diseases, and several on their management. The descriptions are clear and succinct, the charts and tables are helpful, and there is a great deal of authentic information not usually found in such books.

There are a few points at which, at least according to an American viewpoint, the book might be made still better. It perhaps went to press before much was known about the use of gamma globulin for the prevention of measles, or of hyperimmune serum for the treatment of whooping cough, but it might at least mention human convalescent serum for scarlet fever. On page 70, the colored chart of schematic drawings of four rashes is not good and should be replaced by colored photographs of actual conditions. In measles the congestion and swelling of the caruncles and semi-lunar folds in the inner corner of the eyes are not mentioned. On page 334, we are all told it is wise to isolate a poliomyelitis patient four weeks; on page 338, three weeks is given as the isolation period.

The chapter on poliomyelitis is perhaps the least perfect from the American viewpoint. There is no mention of muscle shortening, spasticity, or spasm—except the statement that there is stiffness of the neck and spine in the meningeal phase. Under treatment early immobilization is advocated, and we are told we must put patients in a respirator as soon as respiratory paralysis is suspected. In a one-paragraph mention of Sister Kenny on page 336, no true conception is obtained of the present-day Kenny treatment, and the use of baths is actually included as part of her procedure. The authors are probably familiar only with her earlier writings.

On the whole, however, this is a remarkably useful and valuable book, and one highly to be recommended to any student of infectious diseases.

PHILIP M. STIMSON

Sex in Marriage—By Ernest R. Groves and Gladys Hoagland Groves. (3rd ed.) New York: Emerson, 1943. 224 pp. Price, \$2.00.

The recently revised edition of *Sex in Marriage*, by Dr. and Mrs. Groves, carries sound advice to young men and women about to be married. It limits, with intent, its discussion of happiness in marriage to a consideration of the sex factors involved. It seeks to make the early days, weeks, and months of marriage more satisfying through a clearer understanding on the part of husband and wife of the rôle wholesome sex expression may play in their life together. This book will be particularly helpful for young people with conventional ideas about sex; for them, and particularly for the young girl, the authors develop, in frank and explicit discussion, concepts of the wholesomeness of sex interest and sex expression. This book, in its first edition, was one of the many books which appeared some fifteen years ago when an interested public was suddenly swamped with books on "sex technique." The Groves' exposition was then, and is today, a sound and careful analysis of adult sex life for naturally concerned and questioning young people.

When the Groveses again revise their important book, this reviewer has two suggestions to make. First, it might be wise to change the emphasis of the chapter entitled "The Background" from the self-questioning it encourages to a more generalized discussion of what our culture has done to us individually in laying down the patterns and overtones of our thinking and our expression in sex. In this way the "morbid reaction" the authors so frequently

mention and inveigh against could be more surely avoided and the lessons to be learned from this book could become even more useful.

Secondly, this reviewer would welcome some discussion by Dr. and Mrs. Groves on war and marriage. Surely they have case material on hand to give us important suggestions on how to stabilize the relationship of two people whose married life has been drastically interrupted by the war. No doubt they also have suggestions on how young people may prepare for the reaction to over-idealization of one another which is almost inevitable as a result of separation. These are problems of the moment which we may not neglect.

MARY S. FISHER

Housing Yearbook—By the National Association of Housing Officials. Chicago: NAHO, 1944. 176 pp. Price, \$3.00.

The National Association of Housing Officials has published its tenth successive yearbook covering this past year's housing activities in the United States. An article by the editors summarizes and evaluates these programs. They point out that one of the most significant moves of the federal government has been the consolidation during 1942 of all Federal Housing activities under the National Housing Agency. The NHA has been notably successful in coördinating all housing construction best to serve production and manpower mobilization for the war effort. The authors urge that such coördination is needed in the post-war period.

Several bills to provide federal aid for urban redevelopment and planning were proposed in Congress and, while there was considerable committee discussion, no action was taken during the year. Committee discussions will be resumed shortly.

The New York Court of Appeals ruled that the New York Redevelop-

ment Companies' law is constitutional but the Illinois Circuit Court law has ruled that the Illinois law is unconstitutional.

Federal action on appropriations and determination of policies to permit federal housing agencies to engage in preparation for the post-war period and on the relationship of public housing to urban redevelopment is needed to stimulate and make possible local planning. A plea was voiced urging local housing authorities to assume local responsibility and leadership in the formulation of overall housing programs in their respective communities.

The work of the four major Federal Housing agencies is reviewed by the administrators of each of these agencies. The year's activities were mainly in housing production under wartime restrictions and priorities.

The Directory of Housing agencies which has been a part of this yearbook from the beginning is again included. This is the only up-to-date directory of all known official and unofficial housing agencies published. Public health officials and workers interested in housing should read and have as a reference this valuable outline of the past year's housing activity in this country.

ALFRED H. FLETCHER

Borderlands of Psychiatry—By Stanley Cobb. Cambridge: Harvard University Press, 1944. 166 pp. Price, \$2.50.

Dr. Cobb has undertaken to explore a marginal area in which he estimates there are about six million citizens—some 1,600,000 alcoholics, 1,200,000 stammerers, 650,000 epileptics, 600,000 with other neurological disorders, and at least 2,500,000 psychoneurotics. This frontier land, Dr. Cobb points out, like most borderlands, has been despised and disputed territory. Guided by the facts of neuro-anatomy, physi-

ology, and pathology in his explorations, the author never loses his way in the complex fields of speech, emotion and consciousness. By this scientific approach, Dr. Cobb places these subjects on a firmer foundation and provides a clearer understanding about the millions dwelling in this border region.

In addition to the subjects already mentioned, there are excellent, concise chapters on psychosomatic medicine, epilepsy, and psychoneurosis. Case histories are made clearer by ingenious charts, and understanding of complex functions of the brain and nervous system are made more intelligible by simple diagrams.

This book will be appreciated by anyone who seeks better understanding of the mind. It should be an invaluable book for those public health workers who wish to understand the people that they serve. They will find it helpful even in understanding themselves.

GEORGE M. WHEATLEY

A Basic Plan for Health Education and the School Health Program (80 pp). **A Basic Plan for Student Health and Health Education in Teacher Training Institutions** (40 pp).—*Prepared by the Illinois Joint Committee on School Health. By authority of the State of Illinois, Dwight H. Green, Governor. 1944. Free on request.*

It is highly refreshing to pick up two related reports on school health and health education, and on health in teacher training institutions which are the result of coöperative labors of a widely representative group of workers in a state in the fields of education, medicine, public health, and volunteer services. The two reports under question are the product of just such a comprehensive undertaking in the State of Illinois during the school year 1943-1944. With the consultation services of

Dr. Clair E. Turner, the work represented by these reports was carried on by a Joint Committee of School Health under the combined leadership of the three departments of state government most directly concerned, namely, public education, teacher training, and public health.

Both reports are intended to serve as guides to local groups in planning their own programs in line with local needs. They suggest, rather than dictate plans of action. In each report one finds outlined the elements of a comprehensive program, and in each are practical suggestions on organizing for program planning which should be of great aid to community groups. The report for the elementary and secondary schools contains a helpful list of underlying principles relating to administration, educational procedures, and coöperative relationships, and then proceeds to outline specific objectives in terms of pupil achievement in the various aspects of health. Sections also are devoted to the organization of the student day in the interest of mental and physical health, a healthful school environment, school health services, the health of the teacher and other school employees, and in-service training of teachers.

The report for teacher training institutions treats separately the student health service, a hygienic regimen, instruction in health and in health education, and in-service training for teachers. The broadside attack in both reports on the important problem of in-service training of teachers in health and health education should be of real value in strengthening efforts to meet this much neglected problem.

On the Joint Committee were representatives of twenty-nine agencies whose activities touch upon nearly every angle of child health and teacher education. Approximately one hundred people served on the committees that prepared the different parts of these

reports. This wide participation is significant and should bring rich dividends in interest and leadership as the report is implemented by local experimentation and action. It is hoped that these reports may be followed by supplementary accounts of local accomplishments which have been outgrowths of this commendable state-wide study.

RUTH E. GROUT

The Wounded Get Back—By Albert Q. Maisel. New York: Harcourt Brace, 1944. 230 pp. Price, \$2.50.

Normal Lives for the Disabled—By Edna Yost in collaboration with Lillian M. Gilbreth, Ph.D. New York: Macmillan, 1944. 298 pp. Price, \$2.50.

Jobs for the Physically Handicapped—By Louis Neuschutz. New York: Bernard Ackerman, 1944. 240 pp. Price, \$3.00.

Public health workers dealing with soldiers, veterans, or relatives of either will find it rewarding to become acquainted with all three of these books. They present information which not only has intrinsic and general interest but which also has a special value for people who have become immediately concerned with the problems of the disabled.

The Wounded Get Back, the most popularly written of the books, is exciting reading. The author spent six months in the South Pacific traveling in planes, warships, hospital ships, and jeeps. He talked with wounded

servicemen and medical personnel in practically every type of hospital operated by the Navy. He had the opportunity to observe at first hand the Navy's Medical Department in action at sea and on land, and reports what he saw with intelligence and vividness. Placing the book in the hands of the wife, relative, or friend who is concerned about the medical treatment our men are receiving should do much to expell his or her worry.

The other two books are useful in much the same way but are especially intended for the family of a veteran who has become physically handicapped, for the veteran himself, or as a matter of fact, for any disabled person.

If both are recommended to orient the disabled person or his family it would seem advisable to suggest that *Normal Lives for the Disabled* be read before *Jobs for the Physically Handicapped*. The former book should be of great help in laying a general foundation for the basic adjustment of a disabled individual. In addition to offering helpful suggestions for selecting a vocation, preparing for a job, locating a job, and succeeding in a job, the book discusses such topics as benefits, artificial appliances, and therapies.

Jobs for the Physically Handicapped offers valuable information with regard to the kinds of work that people with various types of physical handicaps can do and have done. Unusual and interesting examples in the form of case histories are presented. LOUIS LONG

BOOKS RECEIVED

APPROVED LABORATORY TECHNIC. Clinical Pathological, Bacteriological, Mycological, Virological, Parasitological, Serological, Biochemical and Histological. By John A. Kolmer, M.D., and Fred Boerner, V.M.D.

New York: D. Appleton-Century, 1945. 4th ed. 1017 pp. Price, \$10.00.
BACTERIOLOGY AND ALLIED SUBJECTS. By Louis Gershenfeld, D.Sc. Easton: Mack, 1945. 561 pp. Price, \$6.00.

- THE CIVILIZED DISEASES: YOU CAN CURE THEM.** By Boris Sokoloff, M.D. New York: Howell, Soskin, Publishers, 1944. 309 pp. Price, \$2.00.
- THE COMMON COLD AND HOW TO FIGHT IT.** By Noah D. Fabricant, M.D. New York: Ziff-Davis, 1945. 107 pp. Price, \$1.50.
- THE CONTROL OF COMMUNICABLE DISEASES.** An Official Report of the American Public Health Association. New York: The American Public Health Association, 1945. 6th ed. 149 pp. Price, \$35.
- CRIME AND THE HUMAN MIND.** By David Abrahamsen, M.D. New York: Columbia University Press, 1944. 244 pp. Price, \$3.00.
- DIRECTORY OF SOCIAL AGENCIES OF THE CITY OF NEW YORK, 1944-1945.** Prepared under the direction of the Committee on Information Services of the Welfare Council. New York: Columbia University Press, 1944. 366 pp. Price, \$4.00.
- EMPLOYMENT OPPORTUNITIES IN PUBLIC HEALTH.** Coöperatively prepared for Employment Counselling Agencies by the Committee on Professional Education of the American Public Health Association and the United States Public Health Service. New York: A.P.H.A., 1945. 30 pp. Free from publisher, 1790 Broadway, New York 19, N. Y.
- AN INTRODUCTION TO ANIMAL BIOLOGY.** By John B. Parker, Ph.D., and John J. Clarke, Ph.D. St. Louis: Mosby, 1945. 2nd ed. 532 pp. Price, \$3.75.
- MALARIA IN THE UPPER MISSISSIPPI VALLEY, 1760-1900.** By Erwin H. Ackerknecht. Supplements to the bulletin of the History of Medicine. No. 4. Baltimore: The Johns Hopkins Press, 1945. 142 pp. Price, \$2.00.
- THE MARCH OF MEDICINE.** The New York Academy of Medicine Lectures to the Laity, 1944. New York: Columbia University Press, 1945. 121 pp. Price, \$1.75.
- MASS MINIATURE RADIOGRAPHY OF CIVILIANS.** For the Detection of Pulmonary Tuberculosis. Guide to Administration and Technique with Mobile Apparatus using 35-mm. Film: and Results of a Survey. By Kathleen C. Clark, P. D'Arcy Hart, Peter Kerley and Brian C. Thompson. Medical Research Council Special Report Series No. 251. London: His Majesty's Stationary Office, 1945. 135 pp. Price, \$90.
- MEN OF SCIENCE IN AMERICA.** The Rôle of Science in the Growth of Our Country. By Bernard Jaffe. New York: Simon and Schuster, 1944. 600 pp. Price, \$3.75.
- PRACTICAL OCCUPATIONAL THERAPY FOR THE MENTALLY AND NERVOUSLY ILL.** By Louis J. Haas. Milwaukee: The Bruce Publishing Company, 1944. 432 pp. Price, \$6.00.
- PROCEEDINGS OF CONFERENCE ON RHEUMATIC FEVER.** WASHINGTON, D. C. OCTOBER 5-7, 1943. United States Department of Labor. Children's Bureau Publication 308. Washington, D. C.: Supt. of Documents, 1945. 135 pp. Price, \$20.
- STATE PROGRAMS FOR CARE OF CHILDREN WITH RHEUMATIC FEVER.** Under the Social Security Act, Title V, Part 2. United States Department of Labor. Children's Bureau. Washington, D. C.: United States Department of Labor. Children's Bureau, 1944. 10 pp. Free from publisher.
- PUTTING THE DISABLED VETERAN BACK TO WORK, II.** A further panel discussion by C. D. Selby, M.D., Col. John N. Andrews, Harley L. Krieger, M.D., A. A. Hendrix, I. Dent Jenkins and Benjamin F. Streets, M.D. Special Series, Bulletin No. 3. Pittsburgh: Industrial Hygiene Foundation, 1944. 33 pp. Price \$25.
- SICKNESS INDEMNIFICATION.** A panel discussion by R. A. Hohaus, Andrew T. Court, W. M. Gafafer, D.Sc., Nathan Sinai, Dr.P.H. Transactions Series, Bulletin No. 1. Pittsburgh: Industrial Hygiene Foundation, 1944. 55 pp. Price, \$50.
- RELIEF AND REHABILITATION.** A Study Guide. Prepared for the National Planning Association by Spencer Cox. Washington, D. C.: National Planning Association. 12 pp. Price, \$15.
- SPANISH SUMMARY OF THE 8TH EDITION (1941) OF STANDARD METHODS FOR THE EXAMINATION OF DAIRY PRODUCTS.** A.P.H.A. New York: A.P.H.A., 1945. 52 pp. Free to Latin American Countries. Price, \$10 in the United States.
- A TEST FOR COLOR BLINDNESS.** By P. B. Wiltberger, M.D. Columbus: College Book Company, 1944. 6 pp. Price, \$1.00.
- TRANSACTIONS OF THE NEW YORK ACADEMY OF SCIENCES.** Section of Geology and Mineralogy. New York: New York Academy of Sciences, 1944. 56 pp. Price, \$25.
- THE TREND OF SYPHILIS IN CLEVELAND, OHIO, AS INDICATED BY SEROLOGICAL TESTS ON REGISTRANTS AT PRENATAL CLINICS.** By Huldah Bancroft, Ph.D. Cleveland: The Joint Social Hygiene Committee of the Academy of Medicine and the Cleveland Health Council, 1945. 13 pp. Free from publisher, 1001 Huron Road, Cleveland, Ohio.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Does Knowledge Prevent Illness?—Then why is the average lease of the doctor's life less than that of the general population? asks the Medical Officer editorially. Noting that the clergy stand near the top of the mortality table, the question of piety is gingerly considered. Is the practice of medicine unhealthy? It is interesting, not too fatiguing, though it too often entails irregular meals and sleep.

ANON. *The Health of Medical Practitioners*. M. Officer. 73, 2:9 (Jan. 13), 1945.

9000 Questions at Work—Our Canadian brethren are told how our Merit System Unit works, what it is doing, and what it hopes to do in developing diagnostic instruments for the selection of public health personnel.

ATWATER, R. M., and LONG, L. D. *New Methods for the Selection of Public Health Personnel*. *Canad. Pub. Health J.* 36, 1:1 (Jan.), 1945.

More Than Good Intentions Needed—Rehabilitation being on every tongue these days, this symposium will add some red meat to the rather insubstantial fare that is currently being served up to us.

BENDER, R. G., *et al.* *Rehabilitation and the Returning Veteran*. *Mental Hyg.* 29, 1:1 (Jan.), 1945.

A Job With a Future—This presentation of the possibilities in rehabilitating the war wounded may prove meaningful to health administrators, for people other than disabled veterans—the tuberculous, for instance—are in need of rehabilitation services. Is it the job of public health to meet this need?

DYKES, J. B. *Rehabilitation of War Casualties*. *War Med.* 7, 1:32 (Jan.), 1945.

After the Mass Surveys, What?—In the last ten years about 2,500,000 New Yorkers have had chest x-rays and about 2 per cent revealed lesions of clinical significance. As there is no excuse for mass surveys unless something is done about follow-up, this paper tells how New York has tried to meet its obligations.

EDWARDS, H. F. *The Place of the Mass Survey in the Tuberculosis Control Program*. *New York State J. Med.* 45, 3:269 (Feb. 1), 1945.

Ginger for a Snail—At the present rate of progress in developing full-time county health service it will take more than a hundred years to cover our nation. What is being done to accelerate the pace is the theme of this paper: one you should read.

EMERSON, H., and ATWATER, R. M. *National Health Based on Local Health Units*. *J.A.M.A.* 127, 7:374 (Feb. 17), 1945.

From a Solitary Laboratory Bench—Those who like to go back to first sources will surely want to read this story of the discovery and development of penicillin by the fellow who did it. One cannot help marvelling at the lag which occurred between the reporting and the utilization of his astounding observation.

FLEMING, A. *Penicillin—Its Discovery, Development, and Uses in the Field of Medicine and Surgery*. *J. Roy. Inst. Pub. Health & Hyg.* 8, 2:36 (Feb.), 1945.

Brother's Keepers, Inc.—In San Antonio, an excessively high prevalence of tuberculosis was found among the Latin-Americans and this high rate was shown to have an unfavorable influence upon the Anglo-Americans.

GORD, D. M. *Mass X-ray Survey in San*

Antonio. Pub. Health Rep. 60, 5:117 (Feb. 2), 1945.

We Can If We Will—Objective: eradication of tuberculosis. **Plan:** chest x-ray of everyone, susceptible groups first; periodic examinations of inactive cases; prompt treatment of all open cases; intensified health education; financial aid to tuberculous bread-winners.

HILLEBOE, H. E. Outlook for Tuberculosis Control. Med. Rec. 157, 12:733 (Dec.), 1944.

This Will Be No Surprise to You—These findings that the situation is poor with respect to health practices in interscholastic athletics in Illinois, will apply to many states, it seems safe to assume.

JACKSON, C. O. An Evaluation of Health Practices in Interscholastic Athletics for Boys in Illinois. Res. Quart. 15, 4:303 (Dec.), 1944.

Ephedrine, Benzedrine, et al.—There are nationally distributed at least 240 different nasal vasoconstrictor compounds in the form of drops, sprays, inhalants, and ointments. The widespread use of this galaxy of medications brings the subject close to the field of public health. Anyway, you will want to be reminded about this article, the moral of which seems to follow the Gilbertian advice, "What, never? Hardly ever."

KULLY, B. M. The Use and Abuse of Nasal Vasoconstrictor Medications. J.A.M.A. 127, 6:307 (Feb. 10), 1945.

Mental and Emotional Deficiencies—Here in a nutshell, is one indigestible nut: "Most mothers, sensing the fact that something is not just right, blindly blame the tonsils, eyes and ears and often request that a

tonsillectomy be done right away." What should be done instead of the tonsillectomy is the burden of this excellent paper.

POWERS, G. F. School Health Problems as Seen in a Pediatric Clinic. Am. J. Nurs. 37, 1:7 (Jan.), 1945.

When to Begin?—If two-thirds of the deaths from pertussis occur before the child is a year old, and it requires some months for immunity to develop after vaccination, when should the immunization be begun? This paper suggests that it may be begun earlier than formerly recommended.

SAKO, W., et al. Early Immunization Against Pertussis With Alum Precipitated Vaccine. J.A.M.A. 127, 7:379 (Feb. 17), 1945.

It's About Workers' Eyes—Being parts of a seminar on the industrial aspects of ophthalmology and emphasizing the need of an adequate eye conservation program, the dearth of industrial ophthalmologists, and the necessity of teaching the subjects in medical schools, these seven papers will be combined with others to be published in book form soon—and are mentioned here just in case you are desirous of knowing the latest ideas in this field.

TOWNSEND, J. G. Importance of Industrial Hygiene. Sight-Saving Rev. 13, 4:219 (Feb.), 1945.

Interesting, If True — Mexican children exposed to siblings with whooping cough seemed to be protected against infection if they were treated with alum-precipitated diphtheria toxoid. Of 61 children unquestionably exposed, all but 4 (93.4 per cent) escaped the disease.

TURNBULL, J. M. Alum-Precipitated Diphtheria Toxoid for Inoculation of Persons Exposed to Whooping Cough. Am. J. Dis. Child. 69, 1:5 (Jan.), 1945.

ASSOCIATION NEWS

SUSTAINING MEMBERS

The By-laws of the Association provide that "Individuals or corporations interested in public health may be elected to Sustaining Membership." The following organizations evidence their interest in and support of the objectives of the Association through their Sustaining Membership:

American Bottlers of Carbonated Beverages, Washington, D. C.
 Ames Company, Inc., Elkhart, Ind.
 The Borden Company, New York, N. Y.
 The Chlorine Institute, Inc., New York, N. Y.
 Clay-Adams Co., Inc., New York, N. Y.
 Disco Laboratories, Inc., Detroit, Mich.
 The Diversey Corporation, Chicago, Ill.
 Economy Manufacturing Company, Chattanooga, Tenn.
 Equitable Life Assurance Society, New York, N. Y.
 Fuld Brothers, Baltimore, Md.
 Hoffmann-LaRoche, Inc., Nutley, N. J.
 Holland-Rantos Co., Inc., New York, N. Y.
 International Assn. of Ice Cream Manufacturers, Washington, D. C.
 International Equipment Company, Boston, Mass.
 John Hancock Mutual Life Insurance Co., Boston, Mass.
 Lederle Laboratories, Inc., New York, N. Y.
 Life Insurance Company of Virginia, Richmond, Va.
 Lily-Tulip Cup Corporation, New York, N. Y.
 The Macmillan Company, New York, N. Y.
 Mr. George W. Merck, President, Merck & Co., Inc., Rahway, N. J.
 Metropolitan Life Insurance Company, New York, N. Y.
 National Life Insurance Co., Montpelier, Vt.
 Oval Wood Dish Corporation, Tupper Lake, N. Y.
 The Prudential Insurance Co. of America, Newark, N. J.
 St. Joseph Lead Company, New York, N. Y.
 The Sealright Company, Inc., Fulton, N. Y.
 Sharp & Dohme, Inc., Glenolden, Pa.
 E. R. Squibb & Sons, Brooklyn, N. Y.
 Sun Life Insurance Company, Baltimore, Md.
 The Travelers Insurance Company, Hartford, Conn.

Union Central Life Insurance Company, Cincinnati, O.
 The Upjohn Company, Kalamazoo, Mich.
 West Disinfecting Company, Long Island City, N. Y.
 Western & Southern Life Insurance Co., Cincinnati, O.
 Winthrop Chemical Co., Inc., New York, N. Y.

An application for Sustaining Membership has also been received from—

National Confectioners' Association, Chicago, Ill.

THE CONTROL OF COMMUNICABLE DISEASES

The publication of *The Control of Communicable Diseases*, an official report of the American Public Health Association, 6th edition, is announced.

First published in 1916, the successive editions of these standard recommendations for the administrative control of the communicable diseases have had world-wide circulation. The present report is official with the U. S. Public Health Service, the United States Navy, and has been approved in principle by the Surgeon General of the United States Army. It has been recommended for adoption as an official statement by the National Health Administration of China. Many of its sections were prepared in agreement with representatives of the Medical Staff of the British Ministry of Health. This volume is being translated into Spanish, Portuguese, French, Italian, Chinese and, possibly, Arabic. The present edition contains 72 chapters, of which 20 are new. All the common communicable diseases are included, as well as those less frequently encountered, like the so-called "tropical" diseases.

The Subcommittee on Communicable Disease Control of the Committee on

Research and Standards of the American Public Health Association is responsible for the present text as officially approved by the Association and other agencies mentioned. The committee is composed of:

Haven Emerson, M.D., *Chairman*
 Lt. Col. Gaylord W. Anderson, M.C., AUS
 Captain T. J. Carter, M.C., USN
 Comdr. L. T. Coggeshall, M.C.
 James A. Doull, M.D.
 James P. Leake, M.D.

Kenneth F. Maxcy, M.D.
 Alton S. Pope, M.D.
 George H. Ramsey, M.D.
 Ernest L. Stebbins, M.D.

The book may be secured from the Association's Book Service. It contains 146 pages and sells for 35¢ per copy, and in quantity as follows: 1 to 24 copies—35¢ each; 25 to 99 copies—30¢ each; 100 to 499 copies—28¢ each; 500 up—20¢ each.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Ross M. Creighton, M.D., D.P.H., P. O. Box 433, Dauphin, Manitoba, Canada, Medical Director, Dauphin Health Unit
 Ellery P. Edwards, M.D., 2953 Mayfield Road, Cleveland Heights, Ohio, Commissioner of Health
 Jonathan W. Fraser, M.D., C.M., City Hall, Kitchener, Ont., Canada, Medical Officer of Health
 Adhemar Paoliello, M.D., M.P.H., Caixa Postal 830, Avenida Pedro II, Rio de Janeiro, D. F. Brazil, S. A., Chief of Circumscription of National Yellow Fever Service, Ministry of Education and Health

Laboratory Section

Dorival Macedo Cardoso, M.D., Praca Cornelia 96, Sao Paulo, Brazil, S. A., Professor of Biochemistry, Escola Paulista de Medicina
 Alice Francisco de El-Koury, M.T., 12 Wilson Ave., Santurce, Puerto Rico, Instructor of Bacteriology, University of Puerto Rico
 Capt. Erik R. Eselius, Sn.C., Gardiner General Hospital, Chicago 15, Ill., Chief, Bacteriological Section, 6th Service Command Laboratory
 Warren E. Hartman, 2384 Fernwood, Pittsfield Village, Ann Arbor, Mich., Bacteriologist, Michigan Dept. of Health
 Elliott B. Henner, 256 Handy St., New Brunswick, N. J., Asst. Bacteriologist, E. R. Squibb and Sons
 Lt. Albert Leibovitz, Sn.C., Station Hospital, Camp Howze, Tex., Bacteriologist
 Elanor E. Mauney, 1803 Cornell Ave., Knoxville, Tenn., Senior Bacteriologist, State Dept. of Public Health

Harold Wainess, M.S., 212 Oregon Bldg., Portland 4, Ore., Asst. Sanitarian (R), U. S. Public Health Service, assigned to Div. of San. Eng., Oregon State Health Dept.
 Morris F. White, 229 E. 6th St., Pittsburg, Calif., Serologist and Bacteriologist, Camp Stoneman Hospital Laboratory
 Cpl. Drake W. Will, Hq. Co., SMDDET, Fitzsimons General Hospital, Denver 8, Colo., Instructor of Bacteriology
 Albert M. Wolf, M.D., 68375 Ridgeland, Chicago 49, Ill., Consultant in Poliomyelitis, State Dept. of Public Health

Vital Statistics Section

Maurice J. Norby, M.A., 22 E. Division St., Chicago 10, Ill., Director of Research, Commission on Hospital Care
 Isadore Seeman, City Health Dept., Baltimore 3, Md., Administrative Assistant, Statistical Section

Engineering Section

Roy Bright, Box 155, Upper Marlboro, Md., Sanitary Inspector, State Health Dept.
 Jenness B. Chambers, Danville, W. Va., Sanitarian, State Dept. of Health
 Robert S. Ingols, Ph.D., 109 S. Observatory St., Ann Arbor, Mich., Instructor in Public Health Engineering, Dept. of Environmental Health, School of Public Health, Univ. of Michigan.
 William A. McCreery, 2311 Baldwin Ave., Temple City, Calif., Senior Sanitary Inspector, Los Angeles County Health Dept.
 Hector Quezada, C.E., School of Public Health, Univ. of Michigan, Ann Arbor, Mich., Student

Industrial Hygiene Section

- Mary Ellen Beam, R.N., 766 Irving St., Syracuse 10, N. Y., Senior Assistant Nurse Officer (R), U. S. Public Health Service; Industrial Nursing Consultant, Division of Industrial Hygiene, State Dept. of Labor
- B. Brainard Bell, 279 Quarry Road, Glastonbury, Conn., Sanitary Inspector, Pratt and Whitney Division, United Aircraft
- Ruth W. Dean, B.N., M.A., 128 Stonybrook Road, Fairfield, Conn., Staff Nurse, New Haven Visiting Nurse Assn.
- Heide Henriksen, 2727 Burnham Blvd., Minneapolis 5, Minn., Industrial Nursing Consultant, State Dept. of Health

Food and Nutrition Section

- Edna P. Amidon, M.S., U. S. Office of Education, Washington 25, D. C., Chief, Home Economics Education Service
- Clovis Cruz Mascarenhas, M.D., Rua Pedro Americo 137, Rio de Janeiro, Brazil, S. A., Nutritionist (Physician of the Ministry of Education and Health)
- John B. Piggott, D.V.M., Leesburg, Va., Dairy Farm Inspector, District of Columbia Health Dept.
- Mabel M. Ritti, M.A., 12 E. 88th St., New York 28, N. Y., Asst. Professor, Dept. of Physiology, Health and Hygiene, Hunter College

Maternal and Child Health Section

- Estelle A. Magiera, M.D., 704 Standard Life Bldg., Jackson 27, Miss., Director, Child Guidance Center, State Board of Health

Public Health Education Section

- Kathleen M. Anderson, R.N., 1386 W. 13th Ave., Vancouver, B. C. Canada, Acting Supervisor of Health Unit I, City of Vancouver
- Etnah R. Boutte, M.A., 2301 7th Ave., New York 30, N. Y., Administrative Secretary, Harlem Division, New York City Cancer Committee
- Comdr. Charles M. Cree, c/o First National Bank, Albuquerque, N. M., Retired from Naval Service
- Rodrigue A. Gravelle, M.S., 11240 Kling St., North Hollywood, Calif., Instructor in Bacteriology, George Pepperdine College
- Lyda L. Hefron, 221 East Michigan, Indianapolis 4, Ind., Health Services Specialist, U. S. Dept. of Agriculture, Farm Security Administration
- Milton E. Kossack, 4663 Lafaye St., New Orleans, La., Public Health Educator, New Orleans Health Dept.
- Lagrima Marin, 1699 East Ann St., Ann

Arbor, Mich., Student, Univ. of Michigan, School of Public Health

- Elta Mae Mast, School of Public Health, Univ. of North Carolina, Chapel Hill, N. C., Student in Health Education
- Leila C. McCormick, Route 2, Rowland, N. C., Student in Health Education, Univ. of North Carolina
- Annie Laurie McDonald, M.A., 1527 12½ St., Hickory, N. C., Student in Health Education, Univ. of North Carolina
- Gwen McWhorter, M.P.H., 504 Atlantic Life Bldg., Richmond, Va., Health Education Director, Virginia Tuberculosis Assn.
- Cleta C. Null, M.S., Missouri Agricultural Extension Service, Waters Hall, Columbia, Mo., State Club Agent
- Raymond Russo, D.V.M., 76 Prairie Ave., Auburndale, Mass., Veterinarian-Instructor, Middlesex University
- Herman S. Shepard, M.S., 166 Second Ave., New York 3, N. Y., Exec. Secy., Williamsburg-Greenpoint District Health Committee

Public Health Nursing Section

- Mercedes Brennon, 33 Loudoun St., Yonkers, N. Y., Director of Public Health Nursing, Yonkers Health Dept.
- Louise P. East, R.N., 153 Cumberland Ave., Asheville, N. C., Consultant Public Health Nurse, State Board of Health
- Alouise S. Goldsmith, R.N., 273 Hillcrest Blvd., Millbrae, Calif., Formerly Asst. Supt. of Field Nurses, Cook County Public Health Unit, Chicago
- Imojean Haser, Courthouse, Belleville, Kans., Public Health Nurse, State Board of Health
- Eleanor B. Hogan, 15231 24th Ave., S.W., Seattle 66, Wash., Formerly Public Health Nurse, Newton County Health Dept., Neosho, Mo.
- Hettie H. Hough, R.N., 4217 Blossom St., Columbia 39, S. C., Maternal and Child Health Consultant Nurse, State Board of Health
- Elsie Howard, R.N., Roncerverte, W. Va., Public Health Nurse, Public Health District 2
- Helen M. Nelson, R.N., Hill City, Kans., Graham County Public Health Nurse
- Maude B. Ruckman, R.N., Marlinton, W. Va., War Emergency Nurse, State Health Dept.
- Elizabeth F. Scott, R.N., 407 W. Franklin St., Baltimore 1, Md., Visiting Nurse, Mutual Benefit Society

Epidemiology Section

- Luba Krynski, M.D., 11 Maple Ave., Bay Shore, L. I., N. Y., Private Practice

Lt. Col. Sterrett E. Dietrich, M.C., Commanding Officer, Army Hospital

Enrique Escobedo-Valdez, M.D., Revolucion 147, Jalapa, Veracruz, Mexico, Epidemiologist, Servicios Sanitarios, Coordinados del Estado de Veracruz

Major Wilbur Craig Mooney, 2700 Laurel St., Vancouver, B. C., Canada, Acting Director, Division of Venereal Disease Control, Provincial Board of Health

Arthur S. Webb, M.D., 129 W. Prairie Ave., Wheaton, Ill., Tuberculosis Controller, Du Page County Tuberculosis Sanatorium Board

Jose M. Zapata, Ph.D., University of Puerto Rico, Rio Piedras, Puerto Rico, Interested Citizen.

School Health Section

Alfred J. Elkins, M.D., 2629 Park Ave., Cincinnati 6, Ohio, District Physician, Cincinnati Health Dept.

Edith Gardner Mcad, M.D., 73 Hooker Ave., Poughkeepsie, N. Y., Medical Inspector, Board of Education, Poughkeepsie Public Schools

Dental Health Section

Dr. David S. K. Dai, West China Union University, Chengtu, Szechwan, W. China, Dentist, Public Health Dept., Medical Dental School

Henrietta Waters, 30 Fairmont Ave., Huntington, N. Y., Dental Hygiene Teacher, Board of Education

Unaffiliated

John L. Humphreys, M.D., 307 Fifth Ave., Pittsburgh 22, Pa., Medical Director, Reliance Life Insurance Co. of Pittsburgh

Mary Graham Mack, M.S.P.H., 220 Madison Ave., New York 16, N. Y., Legislative Analyst, National Tuberculosis Assn.

Max Turteltaub, 79 Gordon St., Charleston 22, S. C., Director of Sanitation, Food and

Milk Divisions, Charleston County Health Dept.

Charles H. Ziegler, 2351 S. Cloverdale Ave., Los Angeles 16, Calif., Sanitation Inspector, Los Angeles City Health Dept.

DECEASED MEMBERS

Percy de Stanley, M.D., Union, N. J., Elected Member 1931, Health Officers Section

Arthur W. Hopper, M.D., Washington, Pa., Elected Member 1939, Health Officers Section

William H. Howell, M.D., Baltimore, Md., Elected Member 1919, Unaffiliated

Pauline E. Kuehler, Whiting, Ind., Elected Member 1942, Industrial Hygiene Section

Frank L. McGahey, M.D., Grenada, Miss., Elected Member 1943, Health Officers Section

Bernard T. McGhie, M.D., Toronto, Ont., Canada, Elected Member 1936, Health Officers Section

Jesus E. Monjaras, M.D., Mexico City, Mexico, Elected Member 1891, Charter Fellow 1923, Honorary Fellow 1935, Unaffiliated

William R. Munson, M.D., Westport, Conn., Elected Member 1944, Health Officers Section

Inez Patterson, New York, N. Y., Elected Member 1944, Public Health Education Section

J. Allen Patton, M.D., Newark, N. J., Elected Member 1920, Unaffiliated

William O. Pauli, M.D., Cincinnati, Ohio, Elected Member 1930, Laboratory Section

H. R. Ross, M.D., Topeka, Kansas, Elected Member 1928, Health Officers Section

Onal A. Sale, M.D., Neosho, Mo., Elected Member 1938, Health Officers Section

Groesbeck Walsh, M.D., Fairfield, Ala., Elected Member 1937, Industrial Hygiene Section

Mortimer Warren, M.D., Portland, Me., Elected Member 1942, Laboratory Section

JOURNALS WANTED

The A.P.H.A. headquarters has exhausted its supply of June and August, 1944, issues of the JOURNAL. Any Journals for 1939 through 1944 will be welcome, and can be used. Members who can spare these issues are requested to send them (collect) to the A.P.H.A. at 1790 Broadway, New York 19, N. Y.

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York 19, N. Y.

POSITIONS AVAILABLE

(Supplemental to lists in recent Journals)

Wanted: Physician to plan, construct, and operate small pioneer community health center in western North Carolina, in cooperation with school and community center. Apply Box F, Employment Service, A.P.H.A.

Wanted: Bacteriologist with equivalent rating of junior grade, A.B. or B.S. degree and at least 1 year's experience in public health laboratory to work in county laboratory acting in capacity of state branch laboratory. Permanent position, salary \$150 per month. Apply Health Department, P. O. Box 151, Arlington, Va.

Eastern city Tuberculosis and Health Association seeks woman for health education secretary with training and experience in modern methods of organizing and conducting health education among adult groups including Negro and labor in county of about 175,000, equally divided between urban and rural. Office is located in capital of state which is a large business center. Good salary and allowance for auto expenses. State age, training, positions held, and give references. Apply Box T, Employment Service, A.P.H.A.

Health Educator Wanted immediately. Salary to start \$3,000 plus travel expense or car furnished. Applicant must have at least bachelor's degree with some specialized training in health education. Experience is desirable. Apply E. E. Palmquist, M.D., King County Health Officer, 402-L County-City Bldg., Seattle 4, Wash.

Wanted: Epidemiologist who will also serve as registrar of vital statistics. Epidemiological services involve investigations of outbreaks of disease and compilation of medical, morbidity and mortality statistics. Applicant must be qualified M.D. Salary \$3,600. Apply Box G, Employment Service, A.P.H.A.

Physician Wanted immediately for position of assistant health officer to direct maternal and child health program. Man or woman physician with pediatric or public health training preferred. Position permanent. Travel expenses paid or car furnished. Salary \$5,460 to start. Apply E. E. Palmquist, M.D., King County Health Officer, 402-L County-City Bldg., Seattle 4, Wash.

Wanted: Man of good habits, between 30 and 50 years of age, for permanent position to take charge of rodent control section of large pest control organization. Must be familiar with typhus control, including general knowledge of building construction and some practical experience in rat-proofing and rodent control. Give educational background and employment experience for past 10 years. Include small photograph. Salary to start \$6,000 per year. Write Box P, Employment Service, A.P.H.A.

Several vacancies in the position of district and county health officers exist in Illinois. Salary range \$3,900 to \$4,800 per annum, plus travel allowance. Write Roland R. Cross, M.D., Director Illinois Department of Public Health, Springfield, Ill.

POSITIONS WANTED

Bacteriologist-immunologist, man, age 44, 25 years' experience medical bacteriology and immunology. Steady, hard worker. Best references. Teaching and public health experience. Desires warm climate. L-475

Pathologist. Diplomate of American Board, Director of Laboratories and Research, Consultant Federal and State Health Agencies and Professor of Public Health. Excellent references. L-472

Advertisement

Opportunities Available

WANTED—(a) Director of tuberculosis control division of county health department; should be trained in public health with experience in tuberculosis control or experienced in tuberculosis work with interest in public health medicine; new and rapidly expanding tuberculosis program; South. (b) Two physicians experienced in industrial, military, or public health medicine; administrative positions with national organization; one position requires considerable traveling; both involve considerable public relations. (c) Dentist trained in children's dentistry and with sufficient knowledge of public health work to be able to conduct well-rounded dental program; county of 157,000; Pacific Northwest. (d) Young woman physician to direct student health department; young women's college; preferably someone who has educational point of view and who is interested in preventive health measures as well as clinical procedures. (e) Medical consultant to develop physician restoration program; minimum four years' experience in medical field appropriate to physical rehabilitation required; Middle West. (f) Director, student health department; duties consist of charge of 50-bed infirmary and responsibility of health service to 1,700 civilian students and 300 army trainees; no surgery; Pacific Coast; \$6,000. (g) Public health physician qualified in pediatrics to direct child health program; state department of health; Pacific Coast. (h) Several dentists for public health appointments in South; would be assigned to one or more counties to provide dental care for indigent children and prenatal patients. PH4-1, Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago.

WANTED—(a) Assistant professor of bacteriology; should be trained in pathogenic bacteriology and immunology as well as physiological bacteriology; should have some knowledge of public health problems; nine-month basis; opportunity for teaching during summer; September 1. (b) Sanitary engineer;

county department of health; Michigan. (c) Dental hygienist to join staff of state department of health; duties primarily in educational field with individuals of all ages and professions; opportunity for developing community programs; East. (d) Bacteriologist and serologist; state department of health; \$200-\$275; South. (e) Assistant bacteriologist; municipal department of health; Southeast. (f) Dental hygienist interested in public health work; South. (g) Five sanitary engineers; new projects, Middle West. \$75-\$80 weekly. PH4-2, Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago.

WANTED—(a) Public health nurse to direct health service of small community; duties include some visiting nursing; must be qualified to serve as administrative head of entire clinic setup; Southwest. (b) Health educator, county department of health; Bachelor's degree with specialized training in health education required; \$3,000; West. (c) Industrial hygiene nurse; must be qualified or interested in public health nursing; duties involve some traveling; Chicago; \$3,000. (d) Industrial nurse; public health background desirable but not required; department considered one of outstanding in state; minimum starting salary, \$200. (e) Several public health nurses for public schools of university town in Middle West; duties are general school nursing in cooperation with city public health department. (f) College nurse to take charge of boarding school group of approximately 60 girls of high school age and 15 faculty; day school of 250 students; staff includes school physician who is responsible for entire health program; opportunity for continuing studies toward degree or for taking special courses in public health at nearby university. (g) Director of student health program; large teaching hospital; Middle West. PH4-3, Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago.

Situations Wanted

Health educator; A.B. degree, eastern college; Sc.D. in Hygiene, School of Hygiene and Public Health, Johns Hopkins; four years, director of health education, state association; past several years, department of health education coeducational college; for further details, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

Dentist; D.D.S., university medical school; several years' private practice; year of postgraduate training in public health hygiene with special emphasis on public health dentistry for which he received degree of M.S.P.H.; several years, state department of health; for further details, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

Public health nurse; B.S. degree in public health nursing; past seven years, educational director and supervisor, municipal department of health; experience in public health nursing has been broad and has included teaching all types of classes; for further details, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

Bacteriologist; A.B., M.S., Ph.D. degrees; twelve years' academic experience during which time he served as professor and head of the department of bacteriology in a university medical school for eight years; past several years, director of research with one of the foundations; for further details, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

AMERICAN RED CROSS IMMUNE SERUM GLOBULIN PLAN

Immune serum globulin (gamma globulin) for the prophylaxis, modification, and treatment of measles is now available for the civilian population through an appropriation by the American Red Cross as announced by Basil O'Connor, Chairman of the Central Committee of the American Red Cross. This action is in keeping with the policy of the American Red Cross to return to the American people, so far as practicable, any useful blood derivatives accumulated in excess of military needs as a result of its blood donor program.

The serum globulin will be supplied without charge to state and territorial health departments or local health departments where biologics are not supplied by the state, provided that the globulin will be distributed without charge to physicians, hospitals, and clinics, and provided that it will be administered in accordance with established standards and without any charge to the patient for the globulin.

As already announced, health departments assumed the costs of processing and distributing immune serum globulin. Under the new plan the entire cost of processing and distributing the product is now borne by the American Red Cross. The crude serum globulin fraction thus made available is derived as a by-product from processing serum albumin under Navy control. It has been declared surplus and assigned by the Navy to the American Red Cross for distribution. Eligible health agencies are requested to place their orders promptly with National Headquarters, American Red Cross, Washington,

D. C., attention of Dr. G. Foard McGinnes, National Medical Director.

*Normal Serum Gamma Globulin Antibodies (Human) Concentrated (Immune Serum Globulin) **

1. *What is this material?*

This preparation is a concentrate containing the antibody globulins derived from pooled normal human plasma collected by the American Red Cross.

2. *What is its potency?*

Preparations of Gamma Globulin Antibodies are standardized so that the concentration of antibody is 25 times that of the plasma pool from which it came. Since each pool is obtained from several thousand donors, variations in titer of measles antibody should be slight. Each preparation is tested for potency in the laboratory by tests for antibodies which can be readily measured. Whenever possible its potency is checked in a series of patients exposed to measles before release for general use.

3. *Stability*

This material should be kept in the icebox like other biologicals. The dating period at present is set at one year. It is probable that it will retain its potency for longer periods of time.

4. *Indications*

At present this material is released *only* for the prevention and modification of measles by passive immunization. Other possible uses are being studied, but insufficient data are available to evaluate its efficacy in these circumstances. Its use in the treatment of measles or the treatment or prophylaxis of other childhood diseases is not recommended at present.

5. *Administration and dosage*

This material may be administered when indicated to patients who have had a definite exposure to measles in the infectious stage.

* Prepared by C. A. Janeway, M.D., Harvard Medical School, Department of Pediatrics, for distribution by the American Red Cross.

Its use to prevent or to modify the disease is at the discretion of the physician.

For prevention—A dose of .03–0.1 cc./lb. body weight should be given as soon after exposure as possible, but will be fairly effective in the first 7 days.

For modification—A dose of .02–.025 cc./lb. body weight should be given on or about the fifth day after first definite exposure.

Method of administration—The globulin is injected *intramuscularly*, preferably in the buttocks. For this, a 20- or 21-gauge needle is most satisfactory. Pull back on plunger of syringe before injection to be sure needle is not in vein, *since globulin as now prepared must not be used intravenously*.

Caution—The globulin is a concentrated protein solution, hence viscous and sticky. Do not fill syringe until prepared to make injection, otherwise syringe may become frozen.

Jaundice—Blood, plasma, and serum have been found on occasion to contain a jaundice-producing agent. Therefore, it is possible that fractions derived from plasma may contain a similar agent. Such jaundice appears 2–6 months after injection. No jaundice has been attributed to this material so far, but careful records of its use should be kept so that any cases of jaundice occurring 2–6 months after injection may be traced to the particular lot concerned.

6. Safety

A great many *intramuscular* injections have been given without any serious reactions and with very little local pain in the dosage recommended. Rarely, fever, irritability, or tenderness of the site may follow injection in the first 24 hours.

7. Duration of effect

A single dose will probably protect a child for about 3 weeks. At the end of that time, if the child is reexposed and protection is desired, the dose should be repeated.

8. Results of injection

With any biological system, in which the virulence of the virus and the resistance of the host may vary considerably, some variation in results is to be expected. With the small doses used for modification, a few patients will develop typical measles; with the large dose, used for prevention, a certain number will fail to develop any evidence of measles.

Mild measles which results from a satisfactory modification may vary from a disease only slightly milder than the average case to

one that exhibits only one or two of the stigmata of measles. Malaise and fever are usually markedly reduced, the catarrhal symptoms slight, and rash may be evanescent and sparse.

U. S. ARMY DEVELOPS HEALTH EDUCATION UNIT

According to an announcement from the office of the Surgeon General, U. S. Army, Washington, a Health Education Unit has been established under the Preventive Medicine Service, Office of the Surgeon General, which combines the functions of the education branches formerly under the Tropical Disease Control Division, the Sanitation and Hygiene Division, and the Venereal Disease Control Division. The primary purpose will be to continue the health education of troops after they have received their formal training, and to this end the new unit will develop educational material on the individual soldier's rôle in malaria and typhus control, prevention of trench foot, and other individual measures that protect the soldier's health. It will make use of many of the educational methods so successfully pioneered by the Venereal Disease Control Division.

Captain Granville W. Larimore, MC, former Chief of the Educational Branch, Venereal Disease Control Division, has been appointed chief of the Health Education Unit. Assisting him will be Capt. Vincent I. Hack, MAC, former Chief of the Education Branch, Sanitation and Hygiene Division.

DR. PHAIR APPOINTED ONTARIO DEPUTY MINISTER OF HEALTH

The appointment of John T. Phair, M.B., D.P.H., of Toronto, as Deputy Minister of Health to succeed the late Dr. Bernard T. McGhie, was recently announced.

Dr. Phair's most recent service has been as Chief Medical Officer of the Ontario Department of Health. He is

a graduate of the University of Toronto Faculty of Medicine in 1909, and has been connected with the City or Provincial Departments of Health since 1917, serving for many years as Chief School Medical Officer for the Province. He was elected Secretary of the Canadian Public Health Association in 1923, and has served as Honorary Secretary for a number of years. Dr. Phair is a member of the Committee on Administrative Practice of the A.P.H.A.

PROMOTIONS AMONG MEDICAL STAFF,
METROPOLITAN LIFE INSURANCE
COMPANY

Leroy A. Lincoln, President of the Metropolitan Life Insurance Company, New York, announced recently the promotion of Anthony J. Lanza, M.D., formerly Assistant Medical Director, to be Associate Medical Director. Dr. Lanza returned to active service with the company early in 1945 after being released from the Medical Corps, U. S. Army, in which he served for three years, attaining the rank of Colonel.

George M. Wheatley, M.D., formerly Assistant Medical Director, to be Assistant Vice-President, Welfare. Dr. Wheatley is currently Secretary of the School Health Section, A.P.H.A.

Albert O. Jimenis, M.D., and Haynes H. Fellows, M.D., formerly Assistant Medical Directors, to be Associate Medical Directors.

DR. ERICKSON APPOINTED OREGON
STATE HEALTH OFFICER

The appointment of Harold M. Erickson, M.D., as State Health Officer in Oregon has been announced on the retirement of Frederick D. Stricker, M.D., who has been Secretary and State Health Officer since 1921. Dr. Erickson has been serving recently as Assistant State Health Officer. He received his M.D. from the University of Oregon Medical School in 1933.

LEGION OF MERIT TO COLONEL
DREISBACH

The award of the Legion of Merit to Colonel Albert R. Dreisbach, MC, USA, formerly Director of the Division of Health and Sanitation and Vice-President of the Institute of Inter-American Affairs, was recently announced "for meritorious conduct in the performance of outstanding services during the period 1942 to 1944 as Assistant Director and Director of the Division of Health and Sanitation in the Office of the Coordinator of Inter-American Affairs." Colonel Dreisbach is at present on duty with the U. S. Army in the Panama Canal Zone.

WILLIAM FREEMAN SNOW AWARD TO
GENERAL IRELAND

The award to Major General Merritte W. Ireland, USA, former Surgeon General of the Army, of the William Freeman Snow Award for Social Hygiene on February 7 has been announced. The award was established in 1937 and has been given annually by the American Social Hygiene Association "for distinguished service to humanity." General Ireland entered the Army in 1891 and served as Surgeon General from 1918 until his retirement in 1931.

AMERICAN SCIENTISTS AID EGYPTIANS

Dr. Maurice L. Tainter, Director of Research, and Chester M. Suter, Ph.D., Director of Chemical Research of the Winthrop Chemical Company, Inc., Rensselaer, N. Y. and New York City, have arrived in Cairo to assist in new research on tropical diseases on invitation of the Egyptian Government. The two American scientists will spend several months abroad investigating malaria, schistosomiasis, and a liver infestation and trachoma. As official guests of the Egyptian Government, Drs. Tainter and Suter will join Egyptian scientists and medical men in collabor-

rative efforts looking toward the development of clinical and laboratory facilities for a systematic and long range study of tropical diseases. Dr. Tainter has been associated with Winthrop since May, 1943, having previously been Professor of Pharmacology, Stanford University School of Medicine, San Francisco. Prior to his association with Winthrop in October, 1942, Dr. Suter was Professor of Organic Chemistry at Northwestern University, Evanston, Ill., and chairman of its Department of Chemistry.

CONTINUED EDUCATION COURSE FOR WATERWORKS PERSONNEL AT UNIVERSITY OF MICHIGAN

On May 22, 23, and 24, 1945, the School of Public Health of the University of Michigan, Ann Arbor, offers an in-service, non-credit, training course for waterworks personnel. It is given at the request of the Michigan Conference on Water Purification and its purpose is to provide for a comprehensive technical review, analysis, and interpretation of the basic scientific considerations involved in problems foremost in the attention of water plant operators. The instruction will be given by a special faculty group brought together for the occasion.

JOINT PROJECT FOR CARE OF EXPECTANT MOTHERS

The Wayne County Medical Society and the Detroit Department of Health are coöperating in a program of group discussion and demonstration for the expectant mother. The physician may refer patients to a series of weekly classes in antepartum education including bath demonstration, infant clothing and general child care. Admission to the classes will be by card signed by the attending physician. The discussion will be directed by qualified nurses under the supervision of the medical society, and material for demon-

strations will be furnished by the society.

MICHIGAN PUBLIC HEALTH ASSOCIATION

David Littlejohn, M.D., director of the Wayne County Health Department, was chosen President-elect of the Michigan Public Health Association during its meeting in Grand Rapids, November 8-10. The following officers were chosen for the year:

President—Nathan Sinai, D.P.H., Ann Arbor
Vice-President—Pearl L. Kendrick, Sc.D.,
Grand Rapids
Secretary-Treasurer—Marjorie Delavan, Lansing

PERSONALS

Central States

CLIFTON HALL, M.D.,* has been appointed to the position of Chief of the Division of Tuberculosis Control, Illinois State Department of Public Health, effective January 14. Dr. Hall was the Director of the Division of Tuberculosis Control of the Kansas State Department of Public Health for five years and has been Health Officer of the local bi-county health department that serves Mecosta and Osceola Counties, with headquarters at Big Rapids, Mich., for five years. H. V. HALVORSON, Ph.D., Professor of Bacteriology at the University of Iowa, according to *Science*, has leave of absence for a year at the University of California at Berkeley, where he is working in the laboratory of PROF. W. V. CRUESS.†

HARRY L. HINSON, JR., Assistant Sanitarian, U. S. Public Health Service Reserve, has been assigned to the Division of Venereal Disease Control, Kansas State Board of Health, Topeka, to set up and operate a venereal disease central registry.

* Fellow A.P.H.A.

† Member A.P.H.A.

GERALD F. KEMPF, M.D., head of the communicable disease service at the Indianapolis City Hospital, has been appointed Superintendent of Preventive Medicine in the Indianapolis City Board of Health, effective January 1. The position is a new one and is the beginning of an expanded program of public health education. In his new capacity Dr. Kempf will also serve as assistant to Herman G. Morgan, M.D., secretary of the City Board of Health.

JOSEPH MAIER, C.P.H.,[†] has accepted an appointment as Public Health Engineer for the City of Port Huron, Mich.

WILLIAM FRED MAYES, M.D., who resigned as Director of the Division of Maternal and Child Welfare, State Board of Health, Topeka, Kans., to become Regional Medical Consultant to the U. S. Children's Bureau, Washington, D. C., has returned to the State Board of Health as Assistant State Health Officer and Director of Local Health Services.

KENNETH M. MORSE,* engineer in the Division, has been appointed temporarily to take charge of the Division of Industrial Hygiene in the Illinois Department of Public Health.

HARRY P. ROSS, M.D., President of the Richmond Board of Health, Indiana, has been appointed a member of the State Board of Health to fill the unexpired term of the late HENRY C. METCALF, M.D.

MAURICE J. AYRES, M.D.,[†] began his duties as assistant to ROLAND H. LODER, M.D.,* in the Division of Maternal and Child Health, State Department of Health of Nebraska in December. The appointment was announced by C. A. SELBY, M.D.,[†] Director of Health. Dr. Ayres was graduated from the School of Medicine, University of Nebraska in 1940. For the past three years he has been with the

Missouri State Health Department. FRANK S. STAFFORD, M.S.,[†] Director of the Division of Health and Physical Education, Indiana State Board of Health, has been given a leave of absence until July 1, 1945, to go to Washington to head the physical fitness program under the United States Commissioner of Education, JOHN W. STUDEBAKER.

I. F. THOMPSON, M.D.,* has been reappointed by the Governor of Wisconsin as member of the State Board of Health for a period of seven years.

Eastern States

FREDERICK J. BAILEY, M.D., has been appointed Health Commissioner of the City of Boston Health Department after more than 40 years' connection with the department, most recently as Deputy Commissioner of the Division of Communicable Diseases. Dr. Bailey has served as a Commander, USNR, from which duties he was temporarily released in December.

JAMES A. COLLINS, JR., M.D., was chosen President recently of the Danville, Pa., Board of Health.

HAROLD S. HUTTON,* of Newark, N. J., was honored by his associates at a dinner in February at the Montclair Golf Club on completion of 25 years with Wallace and Tiernan Company, Inc. Mr. Hutton has served with the U. S. Public Health Service and with the Engineer Corps, U. S. Army.

CAPT. THOMAS M. RIVERS, MC, USNR,* on leave as Director of the Hospital of the Rockefeller Institute, New York, N. Y., has been elected to honorary membership in the Royal Medical Society of Edinburgh, Scotland.

IRVING R. TABERSHAW, Surgeon, U. S.

* Fellow A.P.H.A.

† Member A.P.H.A.

Public Health Service Reserve, assigned to the Division of Occupational Hygiene, Massachusetts Department of Labor and Industries, Boston, has been assigned to the Alabama Department of Public Health to serve as Director of the Division of Industrial Hygiene, Birmingham, Ala., effective January 1. Dr. Tabershow succeeds Dr. GEORGE A. SHIPMAN.†

Southern States

CHARLES B. DAVIS, JR., M.D., of Wilmington, N. C., has resigned as Medical Examiner of the North Carolina Shipbuilding Company to become Director of the Division of Industrial Hygiene of the State Board of Health, effective January 1. Dr. Davis succeeded THOMAS F. VESTAL, M.D.,† of Raleigh, N. C., who has been named head of the Division of Tuberculosis Control of the State Board of Health.

MARTIN FROBISHER, JR., D.Sc.,* of the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md., has been promoted from Associate to Associate Professor in Bacteriology, as recently announced by President Isaiah Bowman.

OLLIE M. GOODLOE, M.D.,† Lexington, Ky., formerly Assistant Director, Bureau of County Health Work, for the Kentucky State Department of Health, and recently Deputy Director of the Peoria Health Department, Peoria, Ill., has been appointed Medical Director of the eastern area of the American Red Cross.

ELIAS W. LANGS, M.D.,† U. S. Public Health Service (R), former district health officer for Norfolk and Princess Anne Counties, Virginia, has been appointed Acting Director of the Division of Communicable Diseases, State Health Department, West Virginia, to succeed ALBERT M.

PRICE, M.D., Charleston, W. Va., resigned. JAMES T. DUNCAN, M.D.,† Director of the Bureau of Tuberculosis, has been serving as Acting Director of the Division of Communicable Diseases since September, 1944.

JACK MASUR, M.D.,† Surgeon (R), U. S. Public Health Service, Washington, has been appointed Chief Medical Officer of the Office of Vocational Rehabilitation, Federal Security Agency, Washington, succeeding DEAN A. CLARK, M.D.,† Senior Surgeon (R), U. S. Public Health Service. Dr. Clark is on leave of absence for a special project and will shortly be transferred to a new assignment in the office of the Surgeon General, U. S. Public Health Service. Dr. Masur has his medical degree from Cornell in 1932 and was Executive Director of the Lebanon Hospital, New York, N. Y., before entering the service.

JOHN JOSEPH PHAIR, M.D., DR.P.H.,* of the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md., has been promoted from Associate to Associate Professor in Epidemiology, as recently announced by President Isaiah Bowman.

VICTOR H. VOGEL, M.D.,† Surgeon, U. S. Public Health Service, has been designated as Assistant Chief Medical Officer of the Office of Vocational Rehabilitation, Federal Security Agency, Washington. He formerly served in the capacity of consultant in psychiatry.

MARTIN B. WOODWARD, M.D.,† Director of the Division of Vital Statistics, State Health Department, West Virginia, has resigned and is now on the staff at the Washoe County General Hospital, Reno, Nevada. No successor has yet been appointed.

Western States

PHILIP A. BEARG, M.D., has been ap-

* Fellow A.P.H.A.

† Member A.P.H.A.

pointed Health Officer of San Luis Obispo County to succeed DR. HARRISON EILERS,[†] who resigned to accept a similar position in Long Beach, Calif.

WILLIAM L. DENTON, M.D., Bridgeport, Calif., has been named Health Officer of Mono County.

BERNARD J. HANLEY, M.D., member of the Los Angeles, Calif., Health Department since 1926, has resigned as Director of the Bureau of Maternal and Child Hygiene of the Los Angeles City Department of Health, effective December 31, according to the *Los Angeles Times*. He has been succeeded by SAMUEL M. MARTINS, M.D., clinic supervising physician.

OLIVE WHITLOCK KLUMP,* Los Angeles, Calif., formerly nursing consultant in the Industrial Hygiene Division, U. S. Public Health Service, Washington, was recently appointed nursing consultant for the Los Angeles County Division of Industrial Hygiene.

Canada

A. E. BERRY, PH.D.,* Director of the Division of Sanitary Engineering, Ontario Department of Health, Toronto, Canada, was elected President of the Federation of Sewage Works Associations at the recent meeting in Pittsburgh.

A. LAPIERRE, M.D., D.P.H.,[†] of Outremont, Quebec, has been appointed Director General of the Administrative and Technical Services of the Ministry of Health and Social Welfare of the Province of Quebec. Dr. Lapierre had previously occupied this position from 1936 to 1939.

A. L. MACNABB, D.V.M.,* Director of the Division of Laboratories, Department of Health of Ontario, Canada, according to the *Canadian Public*

Health Journal has been appointed to succeed DR. C. D. MCGILVRAY as Principal of the Ontario Veterinary College at Guelph, Ontario. He will assume his new duties on July 1.

Foreign

LEOPOLDO AGUERREVERE, M.D., of Caracas, Venezuela, arrived in the United States on February 7. He has been commissioned by his government to study health and sanitation conditions in this country. He plans to visit many of the large cities and confer with health officials.

MAJOR HERBERT A. HUDGINS, M.C.,[†] has been assigned to Headquarters, U. S. Army Forces of the Far East, Civil Affairs Section and is now stationed in the Philippines.

ARTHUR MASSEY, C.B.E., M.D., Medical Officer of Health and School Medical Officer of Coventry, England, who toured the western states in 1944 with a team from the A.P.H.A., was recently elected Chairman of the Central Council for Health Education in Great Britain. Dr. Massey is an Honorary Fellow of the A.P.H.A.

G. H. DE PAULA SOUZA, M.D., D.R.P.H.,* of Sao Paulo, Brazil, is serving as Chief of the Epidemic Control Section of the United Nations Relief and Rehabilitation Administration, Washington, D. C.

The Distinguished Service Medal was recently awarded to MAJOR GEN. MORRISON C. STAYER,[†] formerly of Easton, Pa. The citation read "While serving as chief health officer, the Panama Canal, from September, 1939, to February, 1944, in the face of unprecedented difficulties, his untiring efforts and wise judgment resulted in the maintenance of exceptionally high standards in the Canal Zone and in the cities of Panama and Colon, and in the provision of

* Fellow A.P.H.A.

† Member A.P.H.A.

adequate hospital facilities and personnel. His genius for organization proved invaluable to the government. The manner in which he met all responsibilities placed on him made possible greatly improved health conditions locally and played a large part in the outstanding results achieved in the field of health and sanitation. By his qualities as an officer, a very difficult situation dealing with standards of sanitation was handled in a superior manner. He rendered invaluable service in the recruiting of laborers from Central and South America for vital defense programs in the Caribbean area."

GORDON STRUTHERS, M.D., D.P.H., has returned from many years of medical work in China and has now been appointed to the Department of Health of Ontario in connection with the development of the program of full-time health services in that Province, after serving in the R.C.N.V.R. as Surgeon Lieutenant Commander.

Deaths

HENRY FENNO SAWTELLE, M.D., of Arroyo Grande, Calif., at one time Medical Examiner for the Pension Office in Washington, D. C., where he later became Chief Sanitary Inspect-

* Fellow A.P.H.A.

† Member A.P.H.A.

DIXIE

One of the **VITAL HEALTH**
DEFENSES of America-at-War

CUPS

tor for the Health Department and Assistant Health Officer, died December 2, aged 66.

WILLIAM FRANCIS WILD, M.D.,* of Jackson Heights, N. Y., District Health Officer, Department of Health, Williamsburg - Greenpoint Health Center, died November 13, aged 62. Dr. Wild had served as president of the Connecticut Public Health Association and as Executive Secretary of the Minnesota Public Health Association and at one time served with the American Society for the Control of Cancer and the American Child Health Association; formerly Health Officer of Bridgeport, Conn., the city of Norfolk, Va., and the counties of Nansemond and Isle of Wight; formerly associated with the Nebraska State Board of Health in Lincoln.

HOW TO REMOVE MILK DEPOSITS

On the farm with DICOLOID

A dry, concentrated product, Dicoloid is readily applied in paste form with a wet brush. Penetrates, dissolves and suspends milkstone deposits through its powerful wetting and cleaning action . . . its casein and mineral dissolving properties. Safe to hands or utensils. Agricultural Experiment Stations have shown that milkstone is often the cause of high bacteria counts in milk.

In the plant with DILAC

Diversey Dilac has been specially developed to quickly and effectively remove the stubborn contamination that forms daily on short-time, high temperature pasteurizing units. . . . Softens and dissolves milkstone so it can be completely removed with a minimum of time, labor and material. Write for technical bulletin "Milkstone Control." The Diversey Corporation, 53 W. Jackson Blvd., Chicago 4.



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Official Monthly Publication of the American Public Health Association

Volume 35

May, 1945

Number 5

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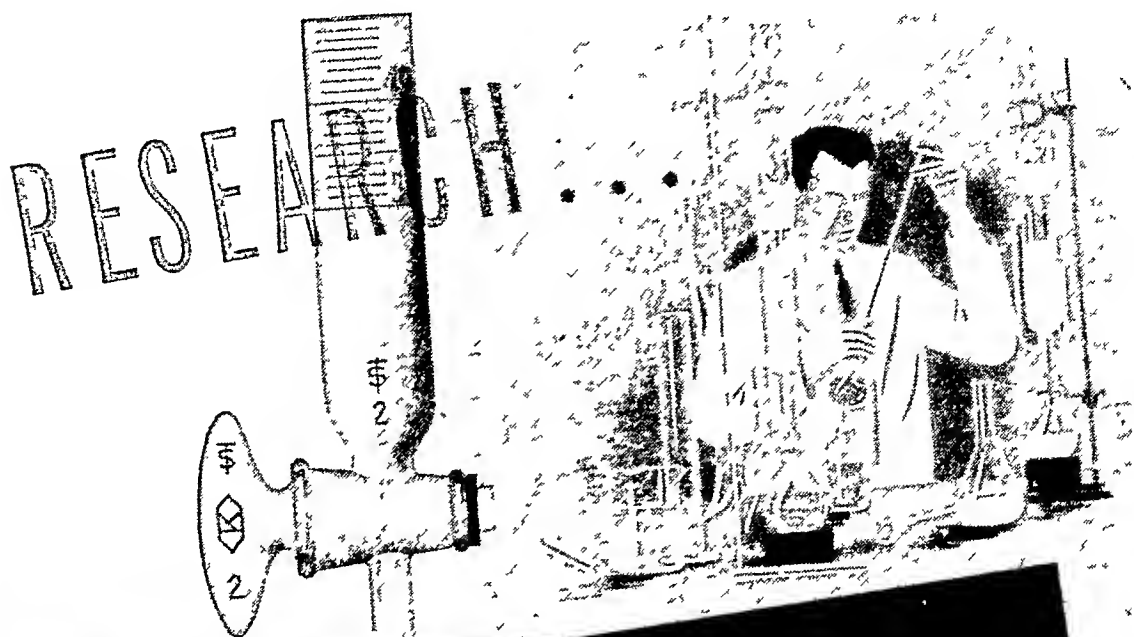
Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$5.00 per year for United States, Cuba and Mexico, South and Central America; \$5.50 for Canada; and \$6.00 for other countries. Single copies 50 cents postpaid. Copyright, 1945, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to the Managing Editor, Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932.
Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.



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American Journal of Public Health

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Volume 35

May, 1945

Number 5

Vincent's Infection—A Wartime Disease

Preliminary Considerations on the Epidemiology
of Ulcerative Gingivostomatitis *

H. TRENDLEY DEAN, DDS, F.A.P.H.A., AND
DENNIS E. SINGLETON, JR., DDS

*Senior Dental Surgeon, and Passed Assistant Dental Surgeon, National Institute
of Health, U. S. Public Health Service, Bethesda, Md.*

FOLLOWING the last war the colloquial reference to Vincent's infection as "trench mouth" developed a tendency in the minds of many to associate it particularly with World War I, but the history of ulcerative stomatitis may be followed back with relative certainty to the end of the 18th century. According to Bergeron^{1, 2} the report of Desgenettes—a view concurred in by Hirsch³—citing the outbreak occurring in 1793 and 1794 in the French Army during the Italian campaign, constitutes the first article dealing specifically with this condition. Prior to that time it is Hirsch's opinion that whatever had been written of the disease is more or less hidden from view, being confused under such general headings as malignant aphthae, noma, "stomacace," or other broad designa-

tions used by older writers covering various diseases of the mucous membrane of the mouth. A recent review by Hirshfield, et al.⁴ credits John Hunter with clearly differentiating ulcerative stomatitis from periodontoclasia and the oral manifestations of scurvy as early as 1778.

For those interested in 19th century literature on the epidemiology of ulcerative stomatitis, recourse may be had to the work of Bergeron^{1, 2} and Hirsch.³

RECOGNITION OF THE DISEASE (DIAGNOSIS)

Ulcerative gingivostomatitis is known by a number of synonyms: ulcerative stomatitis, necrotic gingivitis, ulceromembranous gingivitis, phagedenic gingivitis, Vincent's infection, "trench mouth," and "putrid mouth" (Mundfäule).

The characteristic syndrome of ulcerative gingivostomatitis is: pain, necrosis,

* Presented before the Dental Health Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

pseudomembrane formation, salivation, and a characteristic fetid odor. The onset is rapid, pain being often the only prodromal symptom. The interdental papillae become acutely inflamed, stand away from the teeth, bleed easily on the slightest touch, and are exquisitely painful. Necrosis occurs, beginning with the tip of the interdental papillae, with subsequent development of a characteristic greyish-white pseudomembrane which is easily removed, leaving a raw, profusely bleeding surface. The characteristic odor is a diagnostic point of importance.

This condition may be limited to the interdental papillae of a few adjoining teeth or become generalized, spreading along the festoon of the labial, buccal, and occasionally lingual gingivae, and may at times involve all of the interdental papillae. The anterior (incisor-cuspid) region is the most common site of origin. While ulcerative stomatitis commonly confines itself to the gingiva, it may at times extend to the other parts of the oral mucosa. These secondary lesions are largely confined to the mucous membrane of the cheeks and lips, originating at some area where the mucous membrane is in direct contact with the ulcerated gingiva when the mouth is closed.

Differential diagnosis should exclude: marginal gingivitis, hypertrophic gingivitis, suppurative periodontitis, forms of gingivitis associated with metallic poisons, and certain systemic diseases such as scurvy, pellagra, blood dyscrasias, and the mucous patches of syphilis.

Although the fuso-spirochetal organisms are found to be the predominating bacterial types in this condition, microscopic demonstration of these organisms should not be interpreted independently of clinical findings. Diagnosis rests basically on the clinical syndrome: pain, fetor, pseudomembrane formation and necrosis. In the ab-

sence of this symptom-complex, a positive bacteriological diagnosis serves little purpose.

EPIDEMIOLOGIC CONSIDERATIONS

In dental epidemiology an example of a condition permitting the quantitative measurement of the causative factors and the rate of change in the consequent effects as these factors change is endemic dental fluorosis. In the short space of thirty years its basic epidemiology was written, the etiological agent determined, and its complete prevention under mass control conditions demonstrated. But few problems in stomatology possess the inherent requisites for such objective measurement of its factors as does this simple affection of the dental enamel.

In sharp contrast stands ulcerative gingivostomatitis. After a century and a half and much accumulated experience most of its basic epidemiology is still enshrouded in almost as much uncertainty as in the days of Bergeron and Hirsch.

Consider for example the all-important question of communicability. In 1886 after commenting that the etiology of ulcerative stomatitis among bodies of troops was for the present unsolved, Hirsch³ wrote:

The opinion that putrid mouth is *contagious* or communicable which was expressed by Payen, Léonard, Brée, Bergeron, and Guépratte (and formerly adhered to by me) is not borne out by the experience of Cafford, Colin, Perrier, Laveran, Mourson, Catelan, and Maget, the two last named more especially having made experiments on themselves which produced no effect.

But for the names, this statement has a familiar ring. One would have little difficulty in substituting for these 19th century workers the names of present-day writers. The number of proponents of the communicability assumption and those who reject this supposition would show little change in this division of opinion. The critical

analysis of the existing evidence made a few years ago by Rosebury⁵ in a paper entitled: "Is Vincent's Infection a Communicable Disease?" provides a fitting sequel to the quoted passage from Hirsch of sixty years ago.

Until a few consistent and indisputable facts are clearly demonstrated, an effort to outline the epidemiology of ulcerative gingivostomatitis must proceed with extreme caution. Either we have failed to perceive the significance of what little we know of this syndrome or do not know what is significant in the discordant contradictory literature of the present. The need of a long term searching epidemiological inquiry is so obvious that further comment would be purposeless.

An opportunity recently presented itself to study the dental admission records at the 33 chair Dental Clinic of the U. S. Public Health Service hospital, Sheepshead Bay, New York. This dental clinic serves the officers and men of the U. S. Coast Guard Training Station, Manhattan Beach, and the U. S. Maritime Service Training Station, Sheepshead Bay. While these two populations are located on two contiguous reservations and the personnel of each is either in training for or has experienced sea service, the two groups are completely separate administratively. The Coast Guard, in time of war, is a part of the U. S. Navy; the Maritime Service is concerned with training of personnel for the operation of the merchant marine. Approximately 75,000 men went through these two stations in 1943.

All admissions to the Dental Clinic during 1943 passed through the Clinic's examination unit, two dental officers ordinarily being assigned to this unit for a two months' tour of duty. Beginning May 1, 1943, one dental officer was assigned to the Coast Guard induction center and one dental officer to the Maritime Service induction center for

cursory dental inspection of all men arriving at each station. This system has continued without interruption. All cases tentatively diagnosed as Vincent's infection, questionable Vincent's infection, or gingivitis other than Vincent's and which in the opinion of the inspecting dental officer required immediate clinical treatment* were sent from the induction center to the Clinic's examination unit for a complete dental examination. Other admissions for gingivitis, all forms, were those sent direct to the Clinic's examination unit following the organization's daily sick call. Personnel diagnosed as having one or the other of the gingival disturbances listed were sent to the Clinic's Periodontia Department for treatment.

All dental examination schedules for 1943 were inspected† critically by one of us (D.E.S., Jr.) and the records of all 1943 new admissions for ulcerative gingivostomatitis (Vincent's infection) questionable Vincent's infection, or gingivitis (other than Vincent's infection) were transferred to punch cards for subsequent analysis. For the calendar year 1943, the records thus transferred totaled 3,385. During the first quarter of 1944, new admissions for Vincent's infection totalled 404. These, too, were transferred to punch cards for use in computing the annual rate for the month for this period.

The data which will be presented later is based upon diagnoses made by U. S. Public Health Service dental

* In all probability the amount of non-Vincent's gingivitis reported in this paper considerably understates the actual prevalence in these two commands.

The prevalence of gingivitis (all types) would naturally include not only those admitted to the Clinic for treatment but likewise those milder cases not sent to the Clinic for treatment on initial inspection or not reporting on subsequent sick calls because of the minor nature of the gingival disturbance.

The over-all prevalence of gingivitis could only be determined by a random sampling of each command, but it was not felt that such interference with training programs was justified.

† Study began January, 1944.

officers. In a broad statistical analysis of morbidity data from clinic or hospital records there is always a considerable factor of uncertainty difficult to appraise. The criterion of diagnosis of Vincent's infection doubtless varies among different dental officers; as is well known the nosology of gingivitis is highly imperfect.

These data, therefore, are largely of the nature of an "epidemiological case report" indicating the frequency of these various types of gingivitis in these particular populations during the period of time specified according to the diagnostic criteria of the U. S. Public Health Service dental officers admitting the patient to the clinic.

AGE DISTRIBUTION

The age distribution of the personnel admitted during 1943 for one or the other of the previously mentioned types of gingivitis was determined for Coast Guard, Maritime Training Service, and others (USPHS, USN, and dependents). During 1943 there were admitted to the Clinic 1,578 cases of Vincent's infection, 311 cases of questionable Vincent's infection, and 1,496 individuals with gingivitis (other than Vincent's).

These data distributed according to age are shown in Table 1.

DISTRIBUTION IN TIME

There have been a number of references in the literature to seasonal distribution in the incidence of Vincent's infection. However, these distributions seemingly follow no consistent pattern. Speaking of seasonal distribution, Frost⁶ states:

The seasonal fluctuations in rates of prevalence which are characteristic in many diseases can usually be explained, if at all, only in the light of fairly definite knowledge of other associated epidemiological features; hence, considered by themselves, these fluctuations must be interpreted most cautiously.

Until certain basic facts in the epidemiology of Vincent's infection have been made clear it would seem prudent to heed this cautionary admonition with respect to interpreting data of this nature.

In attempting to interpret fluctuations in monthly morbidity rates in a military population the problem is further complicated by the "flow factor" or the amount and type of movement of the personnel through the organization or camp. For instance, a

TABLE 1

Age Distribution of 3,385 Cases Admitted to the USPHS Dental Clinic, Sheepshead Bay (N. Y.), During the Calendar Year 1943 for Ulcerative Gingivostomatitis (Vincent's Infection), Questionable Vincent's Infection, or Gingivitis Other Than Vincent's Infection According to Branch of Service

| Age | Ulcerative
Gingivostomatitis
(Vincent's Infection)
(a) | | | | Questionable
(Vincent's Infection)
(b) | | | | Gingivitis
(Other than Vincent's)
(c) | | | | All Conditions
(a+b+c) | | | |
|---------|---|-----|---------|-------|--|-----|---------|-------|---|-----|---------|-------|---------------------------|-------|---------|-------|
| | CG | MTS | Others* | Total | CG | MTS | Others* | Total | CG | MTS | Others* | Total | CG | MTS | Others* | Total |
| 17 | 52 | 69 | 0 | 121 | 15 | 13 | 0 | 28 | 96 | 65 | 0 | 161 | 163 | 147 | 0 | 310 |
| 18 | 72 | 148 | 0 | 220 | 19 | 22 | 0 | 41 | 86 | 118 | 0 | 204 | 177 | 288 | 0 | 4 |
| 19 | 50 | 95 | 2 | 147 | 11 | 18 | 0 | 29 | 59 | 88 | 1 | 148 | 120 | 201 | 3 | 32 |
| 20-24 | 244 | 381 | 16 | 641 | 38 | 69 | 6 | 113 | 154 | 262 | 4 | 420 | 436 | 712 | 26 | 1,174 |
| 25-29 | 94 | 185 | 5 | 284 | 14 | 45 | 1 | 60 | 114 | 208 | 2 | 324 | 222 | 438 | 8 | 66 |
| 30-34 | 32 | 77 | 1 | 110 | 7 | 22 | 0 | 29 | 52 | 107 | 6 | 165 | 91 | 206 | 7 | 31 |
| 35-39 | 8 | 18 | 1 | 27 | 3 | 2 | 2 | 7 | 14 | 23 | 4 | 41 | 25 | 43 | 7 | 75 |
| >39+UNK | 4 | 19 | 5 | 28 | 2 | 1 | 1 | 4 | 7 | 20 | 6 | 33 | 13 | 40 | 12 | 65 |
| Total | 556 | 992 | 30 | 1,578 | 109 | 192 | 10 | 311 | 582 | 891 | 23 | 1,496 | 1,247 | 2,075 | 63 | 3,385 |

* USPHS, USN, and dependents.

station or camp may have a relatively constant mean strength and population density but the rate of change of the population and the rapidity with which recruits pass through a training center or other type of shore establishment may be factors of importance. At the Maritime Service this factor was seemingly relatively constant; recruits continued to pass through that station for 7-8 weeks' training* during the period covered by this study. On the other hand, changes at the Coast Guard station presented an interesting epidemiological contrast, a transition in type of population.† From January, 1943, through November, 1943, this station was largely engaged in recruit training (a population drawn from civil life), the training period being of 3 months' duration. In November recruit training rapidly tapered off and a number of school courses for men of more extensive service followed. Then early in February, 1944, another transition occurred, the station becoming largely a reassignment center for men of relatively longer service than the previous population. Many of the latter had extended sea duty oftentimes in small vessels where living conditions were markedly dissimilar to those prevailing on shore establishments. With such abrupt population shifts—particularly in populations which in themselves may be characterized by markedly different prevalences—efforts to interpret monthly morbidity rates on a seasonal basis would seem unwarranted.

The annual rate for the month of the 1,952 admissions of ulcerative gingivostomatitis (Vincent's infection) for the period January, 1943, through March, 1944, divided according to U. S.

Coast Guard and U. S. Maritime Training Service is shown in Table 2.

NUMBER OF CASES OF VINCENT'S DISEASE
(IN-PATIENTS) ADMITTED TO THE
EAR, NOSE, AND THROAT DEPARTMENT
OF THE HOSPITAL DURING 1943

For an estimate of the ratio that the throat types of Vincent's disease bear to the more common form of the gingival involvement, the number and classification of all Vincent's cases admitted to the Ear, Nose, and Throat Clinic of the Hospital during 1943 was obtained from the hospital records. These data are given in Table 3.

Inspection of these data indicates that:

1. A relatively small percentage of Vincent's cases involve the throat.
2. From the standpoint of medical and dental care, treatment of Vincent's disease in general is almost wholly an out-patient dental problem.

TREATMENT AS IT MIGHT RELATE
TO EPIDEMIOLOGY

In general, epidemiology is not chiefly concerned with therapeutics *per se* except in so far as treatment may influence morbidity or mortality rates. However, when dealing with a disease, the etiology of which is not clear, study of a group response to different therapeutic measures may shed some light on obscured aspects of its etiology and therefore warrant epidemiologic inquiry.

Of the admissions to the Dental Clinic for Vincent's infection, a high percentage were treated under a therapeutic regimen developed by Drs. Robert A. Scroggie and James S. Miller.* In this regimen, medication was considered as playing a relatively minor rôle; restoration of a high level of mouth hygiene, at the earliest pos-

* During periods of unusual shipping demand this time may have been somewhat shortened.

† In a general discussion on Vincent's infection by Mack⁷ other circumstances and conditions peculiar to naval personnel are enumerated. In studying populations of this type many of these factors require careful epidemiological consideration.

* Executive Officer and Dental Officer in Charge of the Clinic respectively. The general therapeutic procedures followed at this Clinic were recently discussed by Brooks and Wilson.⁸

TABLE 2

Annual Rate for the Month of 1,952 Admissions for Ulcerative Gingivostomatitis (Vincent's Infection) at the Dental Clinic, USPHS Hospital, Sheephead Bay (N. Y.), Divided According to U. S. Coast Guard and U. S. Maritime Training Service (January 1, 1943-March 31, 1944, Inclusive)

| | U. S. Coast Guard | | U. S. Maritime Training Service | |
|------------------------|-------------------|-----------------------|---------------------------------|-----------------------|
| | Number of Cases | Annual Rate per 1,000 | Number of Cases | Annual Rate per 1,000 |
| 1943 | | | | |
| January | 30 | 43.5 | 47 | 46.6 |
| February | 27 | 40.9 | 41 | 45.7 |
| March | 28 | 40.7 | 41 | 43.5 |
| April | 42 | 64.6 | 36 | 44.2 |
| May | 32 | 50.8 | 82 | 103.7 |
| June | 34 | 55.3 | 65 | 83.2 |
| July | 45 | 77.2 | 129 | 139.7 |
| August | 70 | 118.0 | 138 | 143.3 |
| September | 79 | 132.8 | 108 | 125.2 |
| October | 82 | 124.9 | 111 | 125.6 |
| November | 54 | 85.1 | 89 | 107.6 |
| December | 32 | 52.7 | 105 | 130.8 |
| Unknown | 1 | .... | ... | .... |
| Total 1943 | 556 | 73.1 | 992 | 94.9 |
| 1944 | | | | |
| January | 19 | 38.5 | 92 | 112.1 |
| February | 29 | 73.9 | 99 | 115.1 |
| March | 77 | 148.0 | 88 | 100.4 |
| Total 1st Quarter 1944 | 125 | 89.1 | 279 | 109.4 |

TABLE 3

| | | Coast Guard | Maritime Service | Others | Total |
|--|----------|-------------|------------------|--------|-------|
| Vincent's angina | 610-141 | 6 | 8 | 0 | 14 |
| Vincent's infection of the mouth | 610-1413 | 8 | 19 | 1 | 28 |
| Vincent's infection of the tonsil | 634-1413 | 12 | 20 | 1 | 33 |
| Laryngitis due to <i>Borrelia vincentii</i> | 330-1413 | 0 | 0 | 0 | 0 |
| Vincent's infection of the tongue | 612-1413 | 0 | 0 | 0 | 0 |
| Vincent's infection of lingual tonsil | 635-1413 | 0 | 0 | 0 | 0 |
| Total admissions to E.N.T. | | | | | |
| All Vincent's conditions | | 26 | 47 | 2 | 75 |
| Total Admissions to Dental Clinic in 1943 | | | | | |
| Ulcerative Gingivostomatitis (Vincent's infection) | | 556 | 992 | 30 | 1,578 |

sible moment, a matter of primary importance. Very briefly, treatment consisted of immediate * gross scaling (removal of as much as possible of the gingival calculus) at the first sitting, use of a bland medicament (viogen),†

* The question of immediate gross scaling is not particularly novel. It has been proposed by Merritt⁹ among others for many years. Further support may be found in the recent papers of Schluger,¹⁰ Stammers,¹¹ and Leatherman.¹²

† The efforts of the patient to remove by thorough brushing the effects of a dye such as viogen (1 gram crystal violet, 1 gram brilliant green, and 50 per cent alcohol, q.s. 100 ml.) generally results in the maintenance of a high level of oral hygiene.

detailed instructions in oral hygiene, and an insistence upon a high level of patient coöperation in early attainment and continued maintenance of oral hygienics. Subsequent treatments—about 48 hours apart—consisted of further odontexesis, curettage, an application of viogen, and a careful check of the oral hygiene practices being followed by the patient. For comparative purposes this regimen will be referred to as the "Scroggie-Miller" treatment.

Those treated with chromic acid, silver nitrate, etc., or in some instances

TABLE 4

Comparison in the Average Number of Treatments Between the "Scroggie-Miller" Treatment and "Other" Therapy in 1548 Cases of Ulcerative Gingivostomatitis Admitted to the Dental Clinic, USPHS Hospital, Sheepshead Bay (N. Y.), in 1943

U. S. Coast Guard

| Oral Diagnosis | Number of Cases | | | Treatment | Average Number of Treatments | |
|--|-------------------|-------|-------|------------------------|------------------------------|-------|
| | "Scroggie-Miller" | Other | Total | | "Scroggie-Miller" | Other |
| Ulcerative Gingivostomatitis (Vincent's infection) | 354 | 46 | 400 | Completed: | | |
| | 37 | 17 | 54 | Uninterrupted | 3.2 | 5.2 |
| | | | | Interrupted | 4.6 | 6.3 |
| | 85 | 10 | 95 | Not completed: | | |
| | .. | .. | 7 | Incomplete | 2.6 | 4.7 |
| | | | | Unknown: none recorded | ... | ... |
| | 476 | 73 | 556 | | | |

U. S. Maritime Training Service

| | | | | | | |
|--|-----|-----|-----|------------------------|-----|-----|
| Ulcerative Gingivostomatitis (Vincent's Infection) | 532 | 96 | 628 | Completed: | | |
| | 63 | 21 | 84 | Uninterrupted | 3.2 | 4.3 |
| | | | | Interrupted | 4.3 | 6.1 |
| | 227 | 26 | 253 | Not completed: | | |
| | .. | .. | 27 | Incomplete | 2.3 | 4.0 |
| | | | | Unknown: none recorded | ... | ... |
| | 822 | 143 | 992 | | | |

with two or more agents at different sittings are known as the "other treatment" group. Scaling of teeth during the course of treatment in this group varied.

Both groups used a solution of sodium perborate for a mouth wash.*

In respect to continuity of treatment, the several groups were divided as follows:

1. Completed cases in which there were no broken appointments and the therapeutic regime was carried through to completion without interruption.

2. Completed cases in which the therapeutic regime was interrupted by one or more broken appointments prior to discharge from the Periodontia Department as a treatment completed case.

3. Incompleted cases, or those records in which the patient failed to return for further treatment, were "shipped out," or otherwise failed to carry treatment through to completion.

4. Treatment unknown, or those schedules showing no record of treatment.

* Diluted hydrogen peroxide would have been the mouth wash of choice but problems of distribution in a population of this nature necessitated the use of sodium perborate. Only enough sodium perborate powder was given for several days' use in order to check for possible deleterious effects.

A comparison of the average number of treatments (sittings) per patient of those receiving the "Scroggie-Miller" therapy and those listed under "other" treatment is shown in Table 4.

In attempting to assess from an epidemiological viewpoint mass clinical data taken from hospital records, one naturally approaches any question of interpretation with extreme caution. Obviously it is not possible to determine whether some inherent or unconscious bias developed in the selection of the patients who fell in one treatment category or the other; however, the broad distributional differences seemingly warrant a thoroughly controlled clinical study for such light that it may shed on etiology and control.

SUMMARY

1. After a century and a half of experience and study, the epidemiology of ulcerative gingivostomatitis (Vincent's infection) is still confusing and largely undefined. A thoroughgoing epidemiological study of this syndrome is urgently needed.

2. Inspection of the clinical records at the U. S. Public Health Service Dental Clinic, Sheepshead Bay (N. Y.) disclosed:

(a) The annual admission rate for ulcerative gingivostomatitis (Vincent's infection) in 1943 for the U. S. Coast Guard was 73.1 per 1,000 strength; for the U. S. Maritime Training Service, 94.9 per 1,000 strength.

(b) Vincent's disease in general seems predominantly a dental problem. In 1943 there were 1,578 cases of Vincent's infection admitted to the Dental Clinic in contrast to 47 cases of Vincent's angina or Vincent's infection of the tonsil admitted to the hospital.

(c) Gross scaling (removal of as much as possible of irritants such as supragingival and subgingival calculus, soft debris, etc.) at the first sitting, and use of a bland medicament in conjunction with full patient coöperation in attaining and maintaining a high level of oral hygiene was effective in restoring gingival health.

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ACKNOWLEDGMENT—The authors desire to express their appreciation to the officers of the U. S. Public Health Service, the U. S. Coast Guard, and the U. S. Maritime Training Service who so generously coöperated in this study, and to Principal Statistician William M. Gafafer, U. S. Public Health Service, for advice and suggestions in preparing this report.

Sample Censuses in Congested Production Areas

The Committee for Congested Production Areas of the Executive Office of the President, Washington, has published a brochure entitled "Observations on the Sample Censuses in Ten Congested Production Areas." It was published in December, 1944, by the group of which Corrington Gill is the Director. Although this is only a partial answer to the population shifts which have taken place in the United States during recent years, anyone who is deal-

ing first hand with these problems will find illumination in the diagram showing the origins of the migrants, with other factors bearing on population mobility, on the distance of the move and on the implication of this most disturbing factor in our census computations. Charts are presented showing the sources of out-of-town war workers for Puget Sound, for Portland, for San Francisco, Los Angeles, San Diego, Hampton Roads, Detroit, and Mobile.

Vincent's Infection—A Wartime Disease

Observations on the Oral Spirochetal Flora Present in
Vincent's Infection *

EDWARD G. HAMPP, D.D.S.

*Fellow, Research Commission, American Dental Association; National Institute
of Health, United States Public Health Service, Bethesda, Md.*

ROUTINE observations of the oral cavity indicate the liability of the mucous membrane and supporting soft tissues of the teeth to numerous types of lesions. These pathological alterations vary from mild inflammations of the gingival tissues to cases in which there is massive necrosis that may involve and destroy considerable portions of the face.

Local inflammation of the oral mucosa and gingivae, as the result of trauma from faulty occlusion, tartar deposits, and ill fitting dental appliances, account for many oral lesions. However, there are certain disease conditions such as Vincent's angina, ulcerative stomatitis, and noma which are characterized by various gradations of necrosis, pseudo-membrane formation, and fetid odor, whose specific etiology is assumed but not definitely ascertained. The constant predominance of spirochetes and fusiform bacilli in such conditions endows them with a possible related etiological significance. This contention is further supported by the fact that under such conditions these organisms are found to invade the soft tissues of the mouth. The spirochetes are usually found deep in the sub-mucosa, far in advance of the necrotic tissue and of the fusiform bacilli.^{1, 2, 3} Even though this evidence is suggestive, conclusive evidence has never been

presented that these organisms are the etiological agents responsible for such conditions.

There is a very definite need for experimentation with pure cultures of the various members of the oral fusospirochetal flora, both separately and in combination with pure cultures of the other oral bacteria, in order to elucidate the exact relationship of these organisms to the disease. The fusiform bacilli and most of the associated organisms in such conditions may be isolated, cultivated, and classified with a reasonable degree of accuracy. However, the various members of the spirochetal flora have presented an enigma in this respect. The greatest difficulty has been from a technical consideration in isolation and cultivation of these organisms on artificial media and the identification of them accurately once they have been isolated.

It is the purpose of this presentation to report some of our observations on the isolation and cultivation of certain of the oral spirochetes associated with cases of ulcero-membranous gingivitis. In addition, we shall compare the findings observed when pure cultures of certain of the spirochetes are studied microscopically, using heat-fixed stained smears observed by direct illumination and wet preparations of the same organisms observed by dark-field illumination, and point out the risk of employing the former method as a means of establishing the identity of the oral spirochetal species.

* Read before the Dental Health Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

HISTORICAL

Reports in the literature on the subject of Vincent's infection indicate that Veillon in 1894,⁴ Plaut in 1894,⁵ and Vincent in 1896,⁶ were the first to associate the spirochetes and fusiform bacilli with ulcero-membranous lesions. However, Veillon and Plaut merely mentioned the presence of spirochetes and fusiform bacilli and did not definitely associate them with the disease. Vincent in 1896⁶ and 1898⁷ described in minute detail the fusiform bacilli which he associated with "hospital gangrene" and pharyngitis, but merely mentioned the presence of spirochetes in such cases. By 1905⁸ he presented detailed descriptions of both the spirochetes and fusiform bacilli and associated them with the disease.

In the 19th century literature on the subject of ulcerative stomatitis are found two articles by Jules Bergeron, a book in 1859⁹ and an extensive review in 1883.¹⁰ His work is most comprehensive, including epidemiology, pathology, and bacteriology. From his epidemiological evidence he considered the disease communicable and considered certain predisposing factors, such as nutrition, fatigue, and the peculiar conditions of military and institutional life to be essential in the production of the disease. In an effort to find a specific etiological agent, Bergeron¹⁰ consulted Pasteur. After microscopic examination of material removed from lesions in a case of ulcerative stomatitis, Pasteur was impressed by the presence of large numbers of "spirilla" and postulated that these organisms should be the agents responsible for the disease. He cultivated the "spirilla" in an appropriate liquid medium and inoculated rabbits with his cultures but was not successful in producing lesions in these animals.

Following the work of Pasteur, Bergeron enlisted the service of Netter, one of his young interns, whom he con-

sidered an expert in the field of bacteriological research. Bergeron¹⁰ states that Netter also found "spirilla" in material obtained from cases of ulcerative stomatitis and indicated that they were morphologically similar to the organisms described by Obermeier in cases of "recurrent typhus," now known as relapsing fever. In addition, these organisms appeared as elongated filaments without appreciable double contours under the strongest illumination, flexible, very motile, and forming some "spires." Netter was successful in growing the "spirilla" in ascitic fluid and in a defibrinated fluid of pleurisy, and was able to produce small vesicles in rabbits with his "second cultures," but these did not ulcerate and gradually disappeared. Like Pasteur, Netter considered the "spirillum" the etiological agent of ulcerative stomatitis.

From the evidence presented it is obvious that Pasteur and Netter specifically incriminated a particular "spirillum" as the etiological agent of ulcero-membranous stomatitis. Netter described it most accurately, so that his organism was undoubtedly the same as the spirochete we now consider as *Borrelia vincentii*. In addition, both Pasteur and Netter were able to cultivate the "spirillum" in question and the latter used ascitic and pleural fluid which is still employed as the basis of present-day media for isolating and cultivating the oral spirochetes. It is unfortunate that a detailed description of their methods of cultivation was not presented. On the basis of priority, Bergeron, Pasteur, and Netter should be credited with having described, cultivated, performed animal experiments, and associated the spirochetes with the ulcero-membranous stomatitis syndrome.

Following the discovery of *Treponema pallidum* by Shaudinn in 1905, there was frenzied effort to isolate and cultivate the various spirochetes peculiar

to man and attempt to associate them with disease processes. Mühlens,¹¹ and Mühlens and Hartmann¹² described a technic for the isolation of certain of the oral spirochetes and they were later followed by Noguchi^{13, 14} and others.¹⁵⁻²⁶ Such work indicates that these organisms are anaerobes and that serum, blood, or ascitic fluid is essential for their growth. Addition of fresh tissue to the medium has been used in many instances, but is apparently not indispensable.

In general, most methods used in the past for the primary isolation of the oral treponemes are modifications and adaptation of the principles advocated by Noguchi.^{13, 14} The methods employed, with the exception of those advocated by Wichelhausen,²⁵ Schramme,¹⁶ Ecker and Weed,²⁰ depend on the ability of the spirochetes to penetrate a suitable medium and grow away from the oral contaminants. In our experience in trying to duplicate the work of other investigators, particularly the methods of Noguchi,^{13, 14} it was found that the most difficult phase of the work was in obtaining pure subcultures from highly contaminated primary cultures contained in test tubes. Due to the longer lag phase in growth of the spirochetes, the contaminating bacteria invariably developed more rapidly and spread over the free surface of the small agar column from the central stab canal. This was further complicated by disruption of the agar by gas forming bacteria so that it was almost impossible to obtain spirochetes in the pure form from the highly contaminated culture.

More recently, the author²⁶ introduced a successful method for primary isolation and cultivation of the smaller oral treponemes.

TECHNIC AND MEDIA

The technic employed in our studies utilized 25 ml. beakers, approximately

3.5 cm. in diameter and 5 cm. in length, which served as containers for the primary cultures.²⁶ After the use of many types of solid media, it was found that a veal heart "hormone" medium^{21, 23, 26} of low agar concentration, which is essentially a modification of Huntton's "hormone" agar²⁷ was most efficacious for growth of the smaller oral treponemes. This medium served as an agar base and was further enriched at the time of use by the addition of 1 ml. of ascitic fluid and 1 ml. of a 1 per cent solution of cysteine hydrochloride to 10 ml. of the melted agar base. This quantity of finished medium was then placed in each container, which resulted in a layer of agar approximately 17 mm. in depth. After the agar had solidified, a well was prepared in the center of the column of agar to a depth of about 12 mm. This was accomplished with the aid of a glass pipette with a bore of 4-5 mm. in diameter.

Subgingival scrapings from cases of Vincent's infection were used as a source of oral spirochetes. This material was mixed with a few drops of a liquid medium, described elsewhere,²⁶ to form a heavy suspension which was then observed by dark-field illumination to confirm the presence of the desired organisms. With the aid of a capillary pipette, several drops of the inoculum were introduced into the well previously prepared in the enriched agar medium. The charged plates were then placed in an upright position in jars rendered anaerobic with hydrogen.

The medium employed for subcultures was the same as that used for primary plates. A capillary pipette was used in all instances to remove a plug of spirochetal-infiltrated agar from the primary plates for microscopic examinations and/or subcultures.

RESULTS

The first indications of spirochetal

growth became evident in primary plates in as short a time as 24 hours, and these were ready for transfer in from 3 to 7 days, an average of 5 days being the rule. These cultures exhibited a characteristic type of growth which was evidenced in one of two ways: as a delicate white cloudy haze extending outward from the reservoir into the surrounding medium, or as compact nodules appearing in the proximity of the well. In the latter instance, the nodules progressively increased in size and ultimately produced the characteristic haze associated with spirochetal growth.

By this method the contaminating organisms, including the gas forming bacteria, are restricted to the confines of the well, thereby preventing contamination and disruption of the agar medium which overcomes the disadvantage of the method described by Noguchi.^{13, 14} However, the treponemes proliferate and infiltrate the surrounding medium and grow in ever widening circles beneath the sterile agar surface. The spirochetes may then be obtained free of contamination by removing a plug of spirochetal infiltrated agar with a capillary pipette as far from the well as possible. By this method as many as twenty pure cultures have been made from a single primary plate. Pure subcultures were obtained routinely in as short a period as from 36 to 72 hours and never more than 5 days.

The effectiveness of this technic is exemplified by the short time required for obtaining primary growths, and the large numbers of initial pure subcultures that may be obtained from a single plate. The use of a well in primary plates is a decided improvement over the older methods of inoculating a suitable medium by stabbing with a straight wire or a capillary pipette. The well is capable of holding a larger inoculum than could be had by either of the stab methods. Consequently, larger num-

bers of spirochetes are held within the confines of a highly nutritious medium; which permits rapid multiplication and penetration of the agar. This condition is apparently a factor in materially reducing the time required for primary isolation of the treponemes. Further, the wall of the well serves as a filter through which the spirochetes may penetrate and become isolated from the contaminants.

Initial subcultures have been successfully obtained from 3 months old primary plates in 36 hours, which demonstrates the effectiveness of the well in restricting the contaminants to its immediate vicinity. In addition, it has not been found necessary to rush transfer procedures as has been advocated.²⁵ Primary plates, as well as pure cultures, have been exposed to air at intervals ranging from 2 to 24 hours without apparent ill effects or undue time in subsequently obtaining pure cultures. Although a reduced oxygen potential is a factor in cultivating the oral spirochetes, the organisms are not so fastidious in this respect as formerly believed. All spirochetal strains isolated in our work have been grown in air by the addition of various types of reducing substances and in these instances the anaerobiosis was apparently not complete.

By the preceding method we have been able to isolate the smaller oral treponemes routinely in the laboratory. In addition, strains morphologically similar to *Borrelia vincentii* have been isolated in pure culture on two occasions by modification of the technic previously described. These organisms have also been obtained in mixed spirochetal culture along with *Borrelia buccale* on numerous occasions. Attempts are being made to refine these methods for routine isolation and cultivation of *B. vincentii* and *B. buccale*.

Having once isolated members of the oral spirochetal species one is cor-

fronted with the problem of their identification and classification. The only method available at the present time is that based on morphological characteristics. With a little experience it is possible to identify the following spirochetal types, by dark-field examination of living organisms: a smaller oral treponeme that corresponds to that of *Treponema microdentium* (Noguchi, 1912), a larger double contoured form referred to as *Borrelia buccale* (Dobell), and an intermediate, large, single contoured type, which corresponds to descriptions in the literature^{28, 29, 2} for *Borrelia vincentii* (Blanchard, 1906). Those species described as *Treponema mucosum* (Noguchi, 1912) and *Treponema macrodentium* (Noguchi, 1912) are not so clearly delineated, and if they exist as independent species, they have not been segregated with accuracy from the above types by us on the basis of morphological criteria.

The use of heat-fixed stained smears for microscopic examination and identification of the oral spirochetes have been very misleading. The fine structural differences that exist between the species may be so distorted or obscured by such methods as to create confusion as to the identity of the spiral forms represented.³⁰

By the use of pure cultures of the smaller oral treponemes, a large spirochetal form similar to those described in the literature for *Borrelia vincentii*, mixed spirochetal cultures containing *Borrelia buccale* and supplementing this material with organisms obtained in cases of oral infection, we shall attempt to point out the discrepancies of the heat-fixed stained smear when observed by direct illumination as compared with wet preparations of similar organisms observed by dark-field illumination. Both the stained and the wet preparations utilized in this work were made from the same bacterial suspensions. The use of pure cultures

waives any doubt as to the forms under consideration.

The stain utilized for the dried films was crystal violet; one part of a saturated solution of the dye in 95 per cent alcohol and 9 parts of distilled water.

Observations of smeared preparations obtained from lesions in cases of Vincent's infection are in most instances conspicuous by the lack of the presence in any appreciable numbers of the smaller oral treponemes. However, examination of the same material by dark-field illumination reveals that they constitute a large percentage of the representative spirochetal types. Semple, Price-Jones, and Digby³¹ indicate that *Treponema dentium* (smaller oral treponemes) constitute about 22 per cent of the total number of spirochetes in Vincent's infection, this approximates our observations.³² The probable explanation of such differences observed by the two methods is based on several factors. The act of drying a smeared preparation in air will cause plasmolysis of the spirochetal body.³³ The extreme length of the oral treponemes in comparison with their width tends to cause the organisms to unfold their closely knit, symmetrically placed coils when dried in air. This tendency is further accentuated by heating during fixation.

These organisms have been found to be more stain resistant than the other oral spirochetes, which often necessitates prolonged staining and in certain instances steaming of the dye to obtain a suitable preparation. This procedure further contributes to the alteration of their morphology. The end results are wavy distorted filaments whose modified morphology may vary from a mild to excessive degree when compared with the same organism in the living state by dark-field examination. Although this morphological alteration is not fully evident in all the cells, it usually predominates in the greater

PLATE I

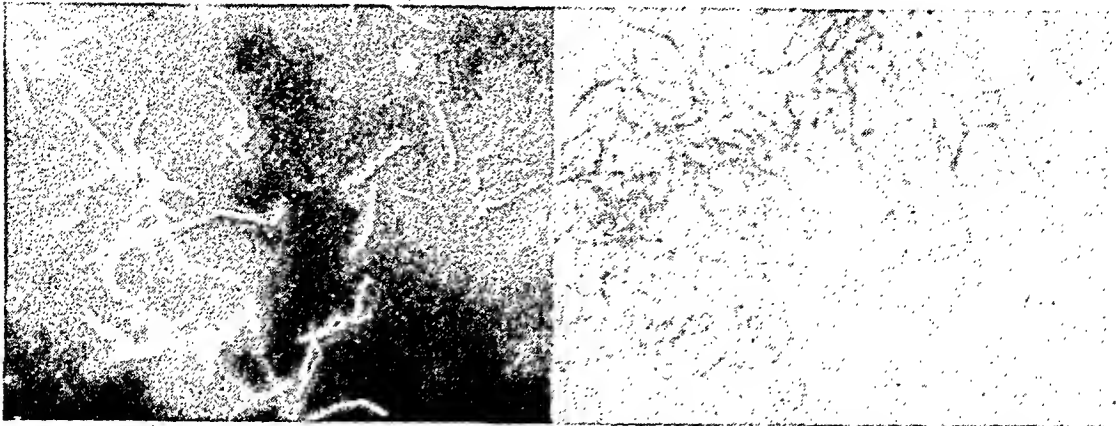


FIGURE 1—Dark-field and stained smear preparations from a pure culture of the smaller oral treponemes; fourth passage (X 1455).

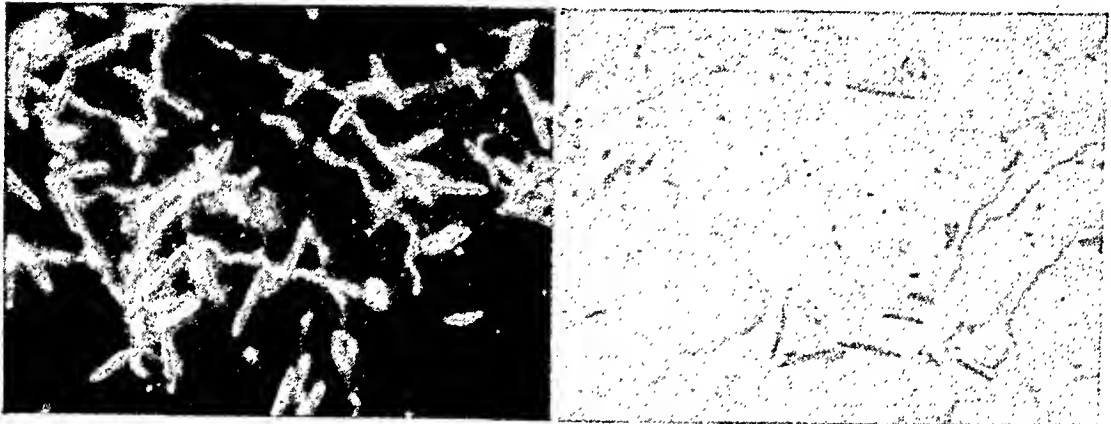


FIGURE 2—Dark-field and stained smear preparations of *Borrelia buccale* and other oral organisms obtained from a case of marginal gingivitis (X 1455).

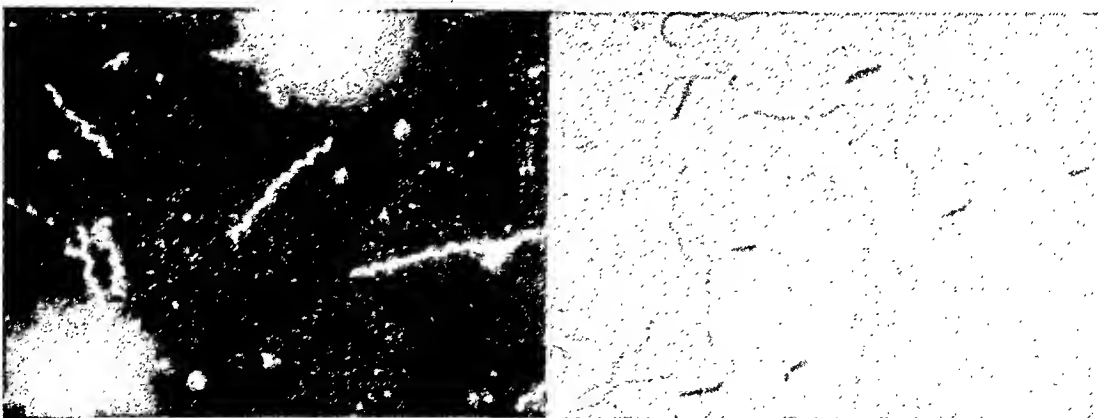


FIGURE 3—Dark-field and stained smear preparations of oral spirochetes that conform with morphological descriptions in the literature for *Borrelia vincentii*. In the stained smear the three forms almost parallel and in the center of the field are the organisms in question. The remaining spiral forms are *Borrelia buccale*. These organisms were obtained from a tonsillar lesion in a case of Vincent's angina.

percentage of individuals represented in such smears.

Figure 1 represents photomicrographs of a dark-field and a stained smear preparation made from a pure actively growing culture of one of the smaller oral treponemes. The former shows quite clearly the closely knit arrangement of the fine symmetrically placed coils as well as the fine tapering extremities which are characteristic of the species. It is not double contoured. Several organisms are present in which no coils are in evidence; these are found occasionally in pure cultures in chains of various lengths, and constitute an extremely small percentage of the total numbers of organisms in a given specimen. The stained smear made from the same suspensions exhibits spirochetes with a marked degree of distortion. These changes are most evident in regard to the shape, size, and spacing of the spirals. The tendency of these organisms to unfold their spirals and assume a straight form in dried film preparations is adequately portrayed. These altered morphological types vary from almost straight forms to long wavy filaments which exceed the length, and in some instances the width of the spirochetes in the control dark-field photomicrograph. Many of these types could be easily confused with intermediate forms of the oral borrelia. Neither the fine tapering extremities nor the terminal filaments are in evidence.

The phenomenon of altered morphology of the small oral treponemes in stain smears is not restricted to this species of organisms but can also be demonstrated in the large oral borrelia.

Smear preparations obtained from lesions in acute cases of Vincent's infection exhibit numerous large spirochetes with three to five widely spaced shallow spirals which imparts to them the appearance of wavy filaments. These forms are frequently referred to

as *Borrelia vincentii*. However, dark-field examination of such material indicates the fallacy of such an assumption. In many instances *Borrelia buccale* may far outnumber the Vincent's spirochetes.³² Semple, Price-Jones, and Digby³¹ report that in Vincent's infection *Borrelia buccale* constitute 70 per cent of the spirochetel forms present. No mention is made of the number of *B. vincentii*. The ease in confusing *B. buccale* and *B. vincentii* in stained smears may be remedied by the use of the dark-field microscope as sufficient differences are found to exist between the two species by this method to identify them with a uniform degree of accuracy.

In Figures 2 and 3 are found dark-field photomicrographs of *Borrelia buccale* and *Borrelia vincentii*; the former organism was obtained from a case of marginal gingivitis and the latter from a tonsillar lesion in a case of Vincent's angina. It is evident that *B. buccale* is longer, wider, and the coils are proportionally larger and more widely spaced than those of *B. vincentii*. In addition *B. buccale* is double contoured while *B. vincentii* does not present this appearance which is an important point in differentiating between the two forms.

In contrast, the width of *B. vincentii* is from one-half to two-thirds that of *B. buccale* so that the former organism appears as a long, thin, graceful spirochete. The extremities of *B. buccale* present as a rule abruptly tapered ends, whereas *B. vincentii* has both extremities more delicately tapered and pointed. Terminal filaments are occasionally observed in both species. In addition, under low magnification (645 X) both *B. buccale* and *B. vincentii* reflect light in a characteristic manner which is evidenced as a yellowish tinge whereas the smaller treponemes present a brilliant white hue. This difference although present

PLATE II

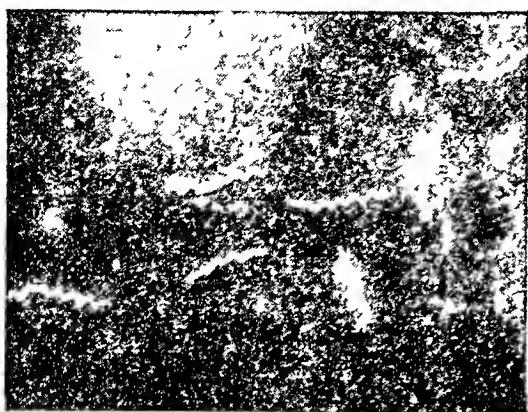


FIGURE 4—Dark-field preparation of *Borrelia buccale* from a mixed spirochetal culture; third passage. The inoculum for this culture was obtained from the same source as Fig. II.

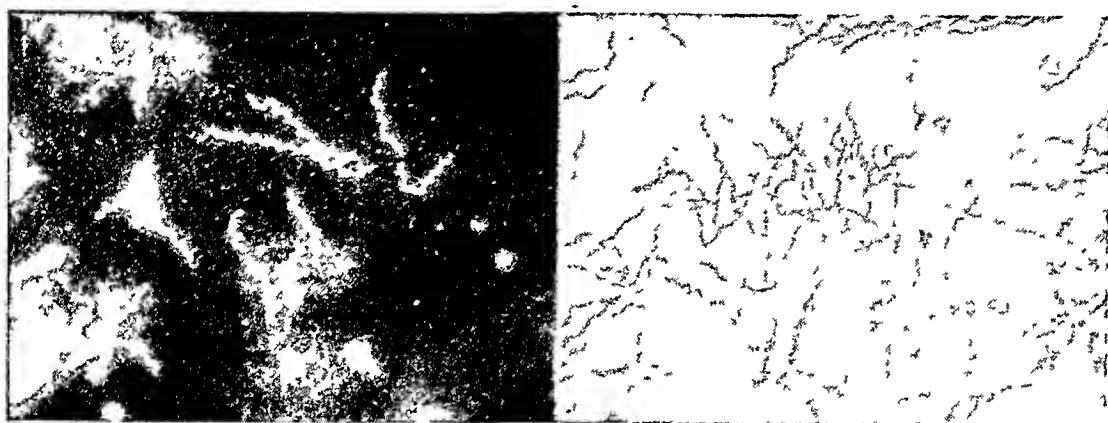


FIGURE 5—Dark-field and stained smear preparations of a pure culture, third passage, of large oral spirochetes which coincide with descriptions in the literature for *Borrelia vincentii*.

is not so pronounced under higher magnification (1455 X).

Figures 2 and 3 also include photomicrographs of heat-fixed stained smears of *B. buccale* and *B. vincentii*. These preparations were made from the same suspension as their mates displayed in the corresponding dark-field photographs. Here, as in the case of the smaller oral treponemes, it is apparent that the greatest amount of physical distortion is found in relation to the shape, size, and spacing of the coils. The extreme length and the wide coils characteristic of these species increases their tendency to assume a straight line when dried in air and fixed by heat. As seen, both photographs exhibit spirochetes varying from almost

straight forms to thin, wavy, ribbon-like filaments possessing several widely spaced irregular shallow spirals which are very unnatural when compared with their mates shown in the control dark-field photomicrographs. The shrinking and narrowing of the cell bodies is most apparent in *B. buccale*. This change when associated with other morphological alterations is sufficient to cause difficulty in identifying with any degree of accuracy the form referred to as *B. vincentii* as it may be confused with *B. buccale*, or *B. buccale* may be mistaken for the pathogenic species. The extremities of both organisms may exhibit the pointed ends or they may be blunted, depending on whether the smear preparations were properly pre-

pared. The terminal protoplasmic filaments have never been observed by us in such preparations.

Of the larger oral spirochetes, *B. buccale* has been reported isolated on few occasions by technics difficult to reproduce.^{21, 34, 2} Figure 4 represents a dark-field photomicrograph of *B. buccale*, obtained during our experiments in cultures in association with the smaller treponemes and free from other contaminating oral bacteria. The inoculum for this culture was obtained from the same source as the organisms portrayed in Figure 2. It is apparent that this form is shorter and narrower and in addition the spirals are proportionally smaller and more compact than those obtained from the original suspension. With these exceptions the morphological characteristics are the same as those organisms previously described.

Conclusive evidence has never been presented that *B. vincentii* has been obtained in pure cultures. Figure 5 represents photomicrographs of a dark-field and a stained smear preparation of a pure culture of large spirochetes obtained in this laboratory which coincides with such descriptions in the literature for *B. vincentii*. They are morphologically different from our strains of treponemes as well as *B. buccale*. The dark-field illustration shows quite clearly that they are large organisms possessing large, widely spaced, symmetrically placed spirals; they are not doubly contoured and have delicately pointed ends and are identical morphologically with those organisms represented in the dark-field photomicrographs in Figure 3. The spirochetes displayed in the stained smear exhibit the same distortion previously described for the other oral species which is most evident in regard to their coils. These organisms vary from almost straight forms to wavy filaments possessing widely spaced irregu-

lar spirals. Many of the extremities are delicately pointed, others are rounded and blunted. Numerous intermediate forms are in evidence.

SUMMARY

A method is presented for the isolation and cultivation of certain of the oral spirochetes associated with lesions in cases of Vincent's infection. The technic is based primarily upon the use of a well for holding the spirochetal containing inoculum in the confines of a highly nutritious medium of low agar concentration, which favors rapid multiplication and penetration of the medium by the spirochetes.

In addition, observations are reported on the morphological differences of certain of the oral spirochetes examined in air-dried, heat-fixed, stained smears examined by direct illumination as compared with the same organisms in the living state by dark-field illumination. The spirochetes utilized in this work were obtained from pure cultures and when necessary were supplemented by organisms procured from lesions in cases of oral infection. *Our results demonstrate the unreliability of the stained smear for the identification of the oral spirochetal species.* Such methods of preparation of smears were found to be responsible for masking fine structural detail, a moderate to extreme degree of distortion of the smaller oral treponemes, as well as shrinkage and distortion of the oral borrelia. These morphological alterations are sufficient to create a false impression of the organisms in question. However, when the same organisms were examined by dark-field illumination sufficient morphological differences were evident so that they could be identified with little difficulty. Until these facts are recognized, confusion will continue to exist in the identification of the spirochetal types associated with oral fusospirochetel infections.

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Vincent's Infection—A Wartime Disease

Reporting of Vincent's Infection by State Health Departments *

CARL L. SEBELIUS, D.D.S., M.P.H.

*Director of Dental Hygiene Service, Tennessee Department of Public Health,
Nashville, Tenn.*

NO doubt, the accuracy of diagnosis and the number of cases of Vincent's infection reported to state health departments might be questioned. It seems that the reports should be closely scrutinized and studied with this thought in mind, "Does the data as collected really give a true picture of the prevalence of Vincent's infection?"

Fowler¹ recently reported that 22 states listed as reportable either Vincent's angina or Vincent's infection. To each of these state health departments was sent a questionnaire shown as Table 1, which asked for pertinent information on the reporting of the disease. Twenty state health departments returned the questionnaire, and the information received serves to make up the material to be given and is briefly presented as Table 2.

From the reports received, the disease reportable in Florida, Idaho, Illinois, Indiana, Kentucky, Maine, Minnesota, New Hampshire, Oregon, Tennessee, and Vermont is Vincent's angina; and all types of Vincent's infection are reportable in Georgia, Iowa, Kansas, Michigan, Nevada, North Carolina, North Dakota, Washington, and Wyoming. It seemed generally agreed that even though Vincent's angina is the reportable disease in 11 of the states,

many of the cases reported are either a Vincent's stomatitis or an acute form of gingivitis. Also, word has been received from Michigan and Minnesota that Vincent's infection has recently been removed from the list of reportable diseases, and from North Carolina the information that its removal is being considered.

One question included in the questionnaire which is of paramount importance in the reporting of Vincent's infection is, "What description of Vincent's infection do you have by law or regulation?" Fourteen of the 20 state departments replied that they had no description while 6 states, namely, Florida, Georgia, Iowa, Kansas, Nevada, and Wyoming, had a description. Four of these states, Florida, Iowa, Kansas, and Nevada have adopted the same description as given in the 1943 edition of the American Public Health Association publication, *The Control of Communicable Disease*. The description reads as follows: "Recognition of the disease—Lesions occurring on either the tonsils of the pharynx (angina), or the oral mucosa (stomatitis) are characterized by necrosis, pseudomembranous formation, salivation, and a fetid odor. In angina and the more acute forms of stomatitis there is a marked pain on swallowing, enlarged tender cervical nodes, and slight fever. Acute type of Vincent's infection is characterized by a rapid onset. The affected gums become acutely in-

* Presented before the Dental Health Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

TABLE 1
Questionnaire
Reporting of Vincent's Infection by State Health Departments

- 1. Name of state making the report
- 2. Source of report in the state: Physicians only
Physicians and Dentists
- 3. Is the infection of Vincent reportable as Vincent's angina
Vincent's infection
- 4. Number of cases of the disease reported during the past five year period.
1939
1940
1941
1942
1943
- 5. Number of deaths reported by year for the same five year period (32b3 of *International list*).
1939
1940
1941
1942
1943
- 6. What description of the disease do you have by law or regulation?
.....
.....
- 7. If Vincent's angina is reportable, do you think that many of the cases reported may have been either a Vincent's stomatitis or an acute form of gingivitis?
.....
- 8. Do you think that the disease as reported gives a true picture of the prevalence of the disease in the state?
- 9. Are most of the reported cases diagnosed by: Clinical findings
Laboratory findings
Both
Unknown
- 10. Do you find that a few physicians report most of the cases of the disease reported?
- 11. Please add any other comments that you may wish on the subject.

Please _____, Commissioner, Tennessee Department of Public Health, Nashville, Tennessee

flamed, the interdental papillae edematous with a soft thick appearance, bleeding easily, and very painful. Necrosis of the interdental papillae occurs with subsequent development of characteristic grayish-white pseudo-membrane which is easily removed leaving a raw, profusely bleeding surface. Ulcerations may coalesce and progress to adjoining alveolar palatal, and buccal mucosa spread toward the buccal sulcus being the more common. A distinctive mixed bacterial flora, including spirochetes, fusiform bacilli, and other organisms, characterizes this group of diseases. Differential diagnosis should exclude: suppurative periodontitis, diphtheria, mucous patches of syphilis, agranulocytic angina, scurvy, and sprue."

The descriptions used in Wyoming and Georgia are more brief. For instance, the description found in the Georgia official bulletin on the control of communicable diseases reads as follows. "*Recognition of the disease*—when lesions are on the tonsils or pharynx, there is ulcero-membranous inflammation, the exudate being easily removable, leaving raw, bleeding surface, slight fever, pain on swallowing, enlarged, tender cervical lymph nodes. A peculiar redness of the throat is usual. When there is a diffuse gingivitis or stomatitis, the ulceration is less severe, the membrane usually lacking, and the pain and fever less marked. The causative micro-organism can be demonstrated under the microscope."

Since in 14 states the rules and regulations governing quarantine and isolation for communicable diseases do not define Vincent's infection or Vincent's angina, there surely is a wealth of misunderstanding as to the clinical picture that the disease presents. For instance, from one state where Vincent's angina is reportable, the following comment was received: "In April, 1943, a physician reported 175 cases in one

county." Surely some type of educational program needs to be developed so that those reporting have the same mental picture of Vincent's infection.

The question, "Do you think that the disease as reported gives a true picture of the prevalence of Vincent's infection?" received a negative reply from 19 state departments with some additional comments such as very poor, very incomplete, and merely a flag.

Previously, it had not occurred to me that in a few states the dentists do not report Vincent's infection. However, from the information received, only physicians report the disease in Idaho, Indiana, Oregon, Tennessee, and Wyoming while in the other states, both physicians and dentists do the reporting.

Since it had been previously noted in Tennessee that a few individuals report most of the cases of Vincent's infection, the question was asked, "Do you find that a few physicians report most of the cases of the disease?" Thirteen of the 17 state departments replied it was so in most cases, 2 that few probably reported most of the cases, and only 2 states reported that the reporting seemed quite general. However, several departments stated that military areas report a considerable number of cases. For instance, 110 of the 205 cases reported in 1942, and 160 of the 325 cases reported in 1943 in Tennessee came from military areas.

As to the most common method used for diagnosis, 10 thought that both laboratory and clinical findings usually served as a basis for diagnosis, 6 departments stated that they were uncertain of the method, 2 thought that most of the cases were diagnosed by laboratory findings, and 2 primarily by clinical findings. In Georgia, of the 880 cases reported during the 5 year period, 1939-1943, 310 cases were diagnosed by clinical findings, 565 by

TABLE 2
Information Received from Twenty-two States on Vincent's Infection Reporting*

| State | Is the disease reported as Vincent's infection (V.I.) or Vincent's angina (V.A.)? | Is there a description of Vincent's infection by law or regulation? | Do the reported cases give a true picture of prevalence? | Who reports Vincent's infection? † | Do you find that a few physicians report most of the cases? | Average morbidity rate per 100,000 population for 1939-44 | Are most cases diagnosed by: |
|----------------|---|---|--|------------------------------------|---|---|------------------------------|
| Florida | V.A. | Yes | No | P.D. | Probably | 7.5 | C |
| Georgia | V.I. | Yes | No | P.D. | No | 5.6 | B |
| Idaho | V.A. | No | No | P. | No | 1.4 | D |
| Illinois | V.A. | No | No | P.D. | Yes | 3.1 | C |
| Indiana | V.A. | No | No | P. | Yes | 2.3 | D |
| Iowa | V.I. | Yes | No | P.D. | Yes | 1.0 | C |
| Kansas | V.I. | Yes | No | P. | Yes | 8.7 | C |
| Kentucky | V.A. | No | No | P.D. | Yes | 5.4 | A |
| Maine | V.A. | No | No | P.D. | Yes | 5.4 | C |
| Michigan ‡ | V.I. | No | No | P.D. | Yes | 4.0 | C |
| Minnesota ‡ | V.A. | Yes | No | P.D. | Probably | 3.3 | A |
| Nevada | V.I. | No | No | P.D. | Yes | ... | C |
| New Hampshire | V.A. | No | No | P.D. | Yes | .. | C |
| North Carolina | V.I. | No | No | P.D.O. | ... | 1.0 | C |
| North Dakota | V.I. | No | No | P.D. | Yes | 8.9 | B |
| Oregon | V.A. | No | ... | P. | ... | 13.0 | D |
| Tennessee | V.A. | No | No | P. | Yes | 7.2 | D |
| Vermont | V.A. | No | No | P.D. | No | 14.8 | C |
| Washington | V.I. | No | No | P.D. | ... | 2.8 | D |
| Wyoming | V.I. | Yes | No | P. | Yes | 4.4 | D |

* The two states not included are: Ohio and Rhode Island

† P—Physician, D—Dentist, O—Others

‡ Vincent's infection recently removed from list of reportable diseases

Are most cases diagnosed by:

- A. Clinical findings
B. Laboratory †
C. Both
D. Unknown

laboratory findings, and in 5 cases the method was unknown.

Several of the states have shown a marked fluctuation in the number of cases reported each year during the 5 year period, 1939-1943. Some of the greatest differences in year by year reporting of Vincent's infection were found in Iowa with 19 cases reported in 1941, and 175 cases in 1942; in Kentucky with 444 cases reported in 1941, and 48 in 1942, and in Florida with 71 cases reported in 1941, 145 in 1942 and 308 in 1943. However, the change may have been due in part to the military camps since both the Florida and Tennessee departments state that military areas are reporting a large number of cases. Similar increases were observed in Kansas and Washington with the number of reported cases in Kansas increasing from 98 in 1942 to 253 in 1943, and in Washington increasing from 48 in 1942 to 129 in 1943.

For comparative purposes, the average morbidity rates per 100,000 population were determined for the 5 year period, 1939-1943 for each state that supplied the cases reported each year. The lowest average rate was observed in Idaho where 1.41 cases per 100,000 population were reported, and the highest rate of Vincent's infection reported in Vermont where 14.75 cases per 100,000 population were reported.

More for general interest than any other reason, the following statements as to the causes of death have been taken from 6 of the 33 death certificates filed in two different states, which were listed during the 1940-1943 period under 32 B of the *International List* as the primary cause of death being Vincent's infection:

1. (a) Bronchial pneumonia 4 days.
(b) Secondary anemia (1 year). Due to chronic Vincent's infection of chest (1 year).
2. Coronary occlusion. Patient under treatment for hyperthropic arthritis and Vincent's infection of mouth and chronic

myocarditis of unknown duration. Progress satisfactory until sudden attack of coronary occlusion.

3. Vincent's infection—both lungs.
4. Vincent's infection, generalized; 3 weeks. Pneumonia, terminal, 12 hours. Kidney and liver involvement, 2 weeks.
5. Vincent's infection of mouth and gastrointestinal tract . . .
6. Osteomyelitis of maxilla—Due to: Vincent's angina hard palate.

However, on a majority of the death certificates, the cause of death was listed as Vincent's infection or Vincent's angina.

SUMMARY

From 20 of the 22 state health departments where Vincent's infection is a reportable disease, the following information regarding the reporting of the disease has been obtained:

1. In 11 states, Vincent's angina is reportable while in 9 states, the disease is reportable as Vincent's infection.
2. By law or regulation only 6 of the 20 state health departments have a description of the disease.
3. All replies received from state health departments reported that Vincent's infection as reported does not give a true picture of the prevalence of the disease.
4. Only physicians report Vincent's infection in 6 of the states.
5. Thirteen of the replies received stated that a few physicians report most of the cases of the disease, 2 that probably a few report most of the cases.
6. The most common method of diagnosis was thought to be both laboratory and clinical.

CONCLUSIONS

It appears that Vincent's infection is poorly reported and that there should be a clearer understanding as to the clinical picture that the disease presents. Such comments as that the physician reports the disease as Vincent's infection and the dentist as gingivitis leaves much to be desired in the accuracy of reporting the disease.

If Vincent's infection is to remain as a reportable disease and the data

received are to be considered comparable, a better understanding of the entire clinic picture will be necessary as well as the epidemiological and

bacteriological aspects of the disease.

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The Cleveland Health Museum

"Nurses, Too, Are Health Educators"; "To Colombia, S. A.: One Health Museum"; and "To Protect Your Child's Hearing," Health Museum Digest No. 1—these are among the titles in the February issue of *Museum News of the Cleveland Health Museum*. The first refers to a three week work shop in health education for nurses to be given at the museum June 18 to July 6, in coöperation with Western Reserve University. The Museum, with its study collections, reference material, and exhibits will give participants real work experience. The need of a "new orientation in health education as practised in nursing" arises out of "new types of medical services, changing emphasis from control of communicable diseases to the degenerative diseases, the shifting of population to an increasing preponderance of older persons, and the growing needs of psychosomatic medicine."

The Health Museum for Colombia was prepared by the Cleveland Museum for the Colombian Government and is made up of duplicates of 73 units of the museum's exhibits and will occupy an area of approximately 2,500 square feet.

Among the items included is a duplicate of "Alimentos Para La Salud," a nutrition exhibit originally prepared for the Mexican Government and now in the National Museum of Hygiene in Mexico City. Thus the first health museum in the United States, opened as recently as November, 1940, has already put a good neighbor policy of its own into effect.

The Digest No. 1, "To Protect Your Child's Hearing," represents the debut of another museum service, the preparation of digests in pamphlet form of radio and other material for lay education in prevention of various physical defects or illnesses.

Ultra-violet Light Control of Air-borne Infections in a Naval Training Center*

Preliminary Report

S. M. WHEELER, LT. (MC) USNR, F.A.P.H.A.,
H. S. INGRAHAM, LT. (MC) USNR, F.A.P.H.A.,
ALEXANDER HOLLAENDER, PH.D.,
N. D. LILL, LT. COMDR. (MC) USNR,
J. GERSHON-COHEN, LT. COMDR. (MC) USNR, AND
E. W. BROWN, CAPT. (MC) USN

*Department of Epidemiology, U. S. Naval Medical School, Bethesda, Md.;
U. S. Naval Training Center, Sampson, N. Y.; Bureau of Medicine and
Surgery, U. S. Navy, Washington, D. C.; and National Institute
of Health, Bethesda, Md.*

THIS study was designed to test the efficiency and practicality of ultra-violet irradiation as a method of reducing the spread of respiratory infection in Navy barracks. In a more general sense it was also hoped that a controlled study of this type on a large scale might give information on the amount of irradiation required for effective control and the differential effect exerted on various diseases of viral and bacterial origin.

While considerable information is now available as to the effect of ultra-violet light in reducing cross-infections in hospital wards, curtailing the incidence of epidemic respiratory diseases in schoolrooms and sterilizing the air about the patient in operating rooms,

systematic studies of the effect of ultra-violet irradiation of military barracks has not heretofore been reported.

Such semi-isolated military communities offer advantages for controlled epidemiological studies which are not to be found in most civilian groups. The population under observation can be very large, yet at the same time accurate figures are available as to its precise strength from day to day. Also, in such controlled populations all illnesses from the dispensary visits for minor complaints to more serious cases requiring hospitalization are known and classified by the medical officers of the unit, and complete data on respiratory morbidity in the study population can be recorded and analyzed. Finally, the nature of such semi-enclosed recruit communities

* Presented before a Joint Session of the Epidemiology, Health Officers, Laboratory, Engineering, and School Health Sections of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

The views expressed in this report are those of the authors and do not necessarily reflect the policies of the Navy Department.

tends to restrict the sources of exposure to infection from outside the compound to a minimum.

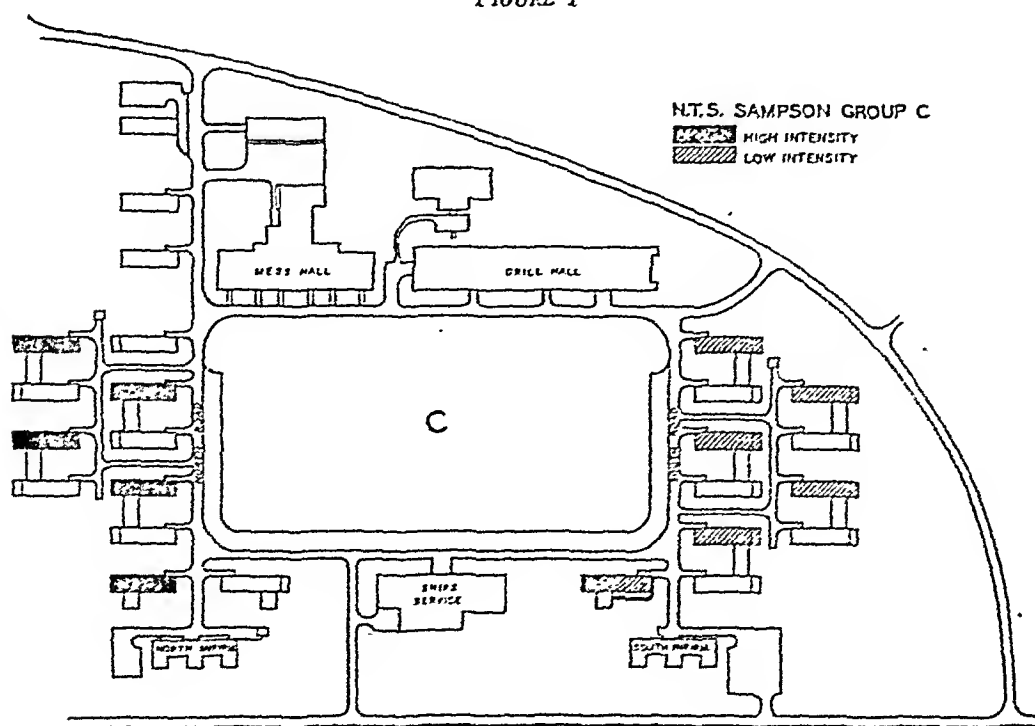
While in the present study ultra-violet fixtures were installed only in the barracks, it is obvious that all exposure to respiratory infection did not take place in the sleeping quarters. In general, however, the recruit companies housed one company to a floor in the various barracks kept together with the men in their own company in their daily life on the drill fields, in the classrooms, mess halls, and other places of work and recreation. It was assumed that the prolonged exposure during the hours of sleeping in the barracks was the most important for the transfer of respiratory infection and that ultra-violet irradiation of the air of the barracks would be the most effective and practical means of interrupting the exchange of infectious material among the recruits.

Since the purpose of the study was to evaluate the practicality as well as effectiveness of ultra-violet lights in

naval units, irradiation of all the indoors environments where the men might be congregated in their daily activities was not attempted. Lights were not installed in the large drill halls, mess halls, and gymnasiums where the size of these buildings would have made irradiation of the large volume of air in sufficient intensity impractical both from the standpoint of cost and from the number of fixtures which would have been required.

The present study was carried out at the U. S. Naval Training Center, Sampson, N. Y. At this camp naval recruits are received from civilian induction centers and are given their recruit training here before assignment in outgoing units for other stations in the Navy at sea or ashore. At the time of the study, in the winter and spring of 1943-1944, the training period was from 4 to 6 weeks in length. This short period of training and the frequency of incoming drafts made for a very rapid overturn of the population during this period.

FIGURE 1



One or two days were spent after the arrival of the recruits in the camp in physical examinations, the issuance of equipment, and the formation of recruit companies. These companies were then quartered in the units where they spent the entire remaining period of training (Figure 1). These self contained training units consisted of the barracks, mess hall, ships service stores, dispensaries, drill hall and other buildings surrounding the drill field. The usual complement of such units was 4,800 recruits housed in twenty-two 2 story barracks, each containing two companies of 112 men with one company to a floor. During the training period, liberty away from the particular unit and contacts with men from other units was at a minimum.

Unit C at Camp Sampson was the training area designated for the ultra-violet study. No other control measures such as sulfadiazine prophylaxis were employed in this area. In this unit the barracks were distributed in two groups of eleven buildings at either end of the drill field. Ultra-violet lights of relatively low intensity were installed in alternate barracks at the south end of the drill field. The intervening barracks at this end of the field which were not equipped with lights served as the low intensity controls. At the north end of the field there was similar experimental design of lighted and control barracks but the intensity of irradiation in each barrack was higher than at the south end. These were designated as the high intensity barracks group and the high intensity controls. Of the eleven irradiated barracks five were installed throughout with high intensity and five with low intensity lights, and one barrack had low intensity lights, on the lower deck and high intensity on the upper. For purposes of analysis the barracks groups and the contained recruit companies were divided into four epidemiological

units of five and one half barracks, or eleven companies each. These were designated high intensity irradiated, high intensity control, low intensity irradiated, and low intensity control. Companies formed from incoming drafts moved into these groups in orderly sequence as graduation of companies into outgoing units took place after 4 to 6 weeks in training. This process made for a constant overturn of the study populations.

The barracks were wooden structures consisting of a large dormitory sleeping quarters on each floor with washroom and toilet facilities. Two rows of double decker wooden bunks were ranged down each side of these dormitories. The bunks were separated by a central aisle, and at the center of the room was a cleared space with tables and chairs and separated from the bunks by a row of clothes lockers.

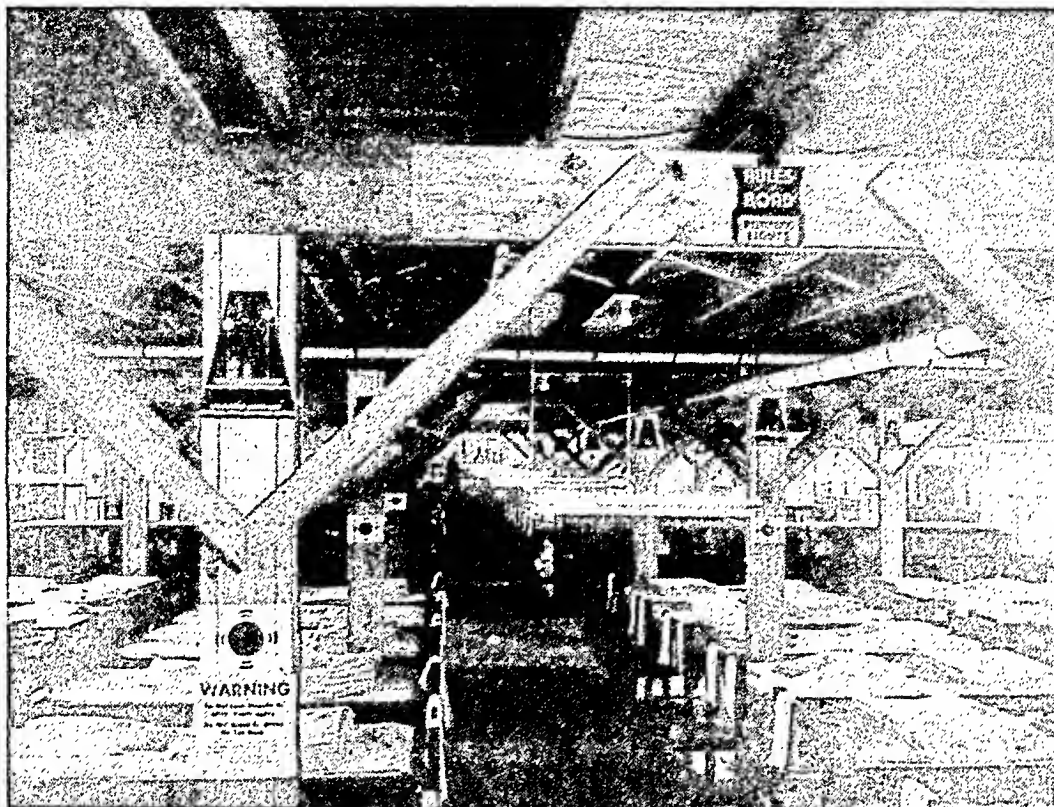
Ultra-violet lights were installed at similar locations in all the lighted barracks. Suspended overhead fixtures provided indirect irradiation directed to the upper air of the barracks. Similar ceiling fixtures were installed in the washrooms. Lights were also installed under the bunks with irradiation directed downward to the floors to achieve a maximum of bactericidal effect on the floors and lower air where bacteria laden dust particles are found to be the most numerous (Figure 2).

More detailed information on the physical aspects of the ultra-violet installation are as follows:

The ceiling lamps were installed 7' 9" from the deck in such a way that only the upper third of the room was irradiated. At the high intensity side 2

| | | Control | |
|------------------------|-------|---------|------|
| Barracks Group | | Cases | Rate |
| 30 watts were used per | | | |
| 133,500 milliwatts. At | | | |
| each barrack room had | | | |
| giving about 75,000 | Rate | | |
| (ceiling). | 81.5 | 434 | 76.0 |
| For deck irradi | 17.1 | 95 | 16.6 |
| bunk lamps we | 0.9 | 8 | 1.4 |
| intensity barr | 0.4 | 1 | 0.2 |
| intensity side 7 | 3.7 | 23 | 4.0 |
| | 563 | 561 | 98.1 |
| | 103.6 | | |

FIGURE 2



intensity side 46,000 milliwatts per floor. Besides these fixtures in the main barracks, heads and showers were equipped with ceiling lights 5 (30 watt) lamps at the high intensity and 9 (15 watt) lamps at the low intensity side). The current used by these lamps is relatively low, very similar to the amount of current used by fluorescent lamps. Bunk lights were installed in such a manner that no direct radiation could be seen by the men sitting on adjacent or other lower bunks. Since only every second bunk was equipped with a lamp, the reflectors threw the light over an area covering the deck under two bunks. The deck of the barracks was virtually covered by a heavy blanket of ultra-violet radiation.

The intensity of scattered ultra-violet radiation was on the average not higher than the levels set by the Council of Physical

— American Medical Association—
no complaints were re-
effect on the eyes. The
t given out by these
o that there was no
en sleeping under
appeared to the
ilar to bright

— started a cer-

tain amount of ozone was produced by them. However, the lamps were burned for not less than fifty hours when men were not present in the barracks. After this time only a very little ozone could be detected, depending on the atmospheric conditions. The amount of breakage of the lamps was small and probably could be entirely avoided by the proper construction of under-bunk lamp fixtures.

The organization of medical services in these recruit units was well adapted for an accurate analysis of respiratory morbidity. All men complaining of illness were seen by the staff of the unit dispensary who administered treatment and arranged for admission to the sick bay or the Naval Hospital if the fever or other symptoms seemed to warrant it. Minor ailments were diagnosed, treated, and returned to duty, but there was no provision for illness requiring bed rest other than admission to the sick bay or hospital.

During the period of observation the names of all recruits in the ultra-violet study area were recorded on individual

cards along with other pertinent epidemiological data. These cards were kept on file in the dispensary and information as to all visits to the sick call and admissions to the sick bay or hospital was recorded on them. Since all illness whether mild or serious was first seen at the dispensary, and since a complete card file was kept on all recruits whether or not they became sick, these card files gave information as to the total population as well as the number and kind of respiratory illnesses occurring within this population. When respiratory diseases were admitted, further information as to the course of the illness was derived from the clinical records. In addition to being seen by the ward medical officer, every admission for respiratory disease was visited and examined by one of the medical officers of the epidemiology unit who made a throat culture to determine the presence of group A streptococci or of meningococci.

In addition to throat cultures on all admissions for respiratory illness there were weekly throat culture surveys of representative samples of recruits from the various barracks and periodic culturing of the men with minor respiratory complaints in the sick call line. Further laboratory work in connection with this study consisted in bacterial

counts of air samples from the air of irradiated and control barracks and in the culturing of dust samples collected from dry sweepings.

RESULTS

The total number of admissions for respiratory illness by principal diagnoses and average number of men per 1,000 admitted during their period of training can be seen in Table 1. In this study admission signifies hospitalization for at least 24 hours. The greatest difference in rates for all these respiratory infections can be seen to occur between lighted and control barracks of the high intensity groups.

The commonest diagnosis in this series is "catarrhal fever," which represents in Navy terminology any febrile upper respiratory infection not specifically localized and without distinguishing diagnostic criteria such as rash or tonsillar exudate. It is also apparent from this table that specific bacterial infections such as scarlet fever and meningococcus meningitis, or specific virus diseases such as German measles were relatively scarce both in irradiated and control barracks during the months of observation in the winter and spring of 1943-1944.

This scarcity of streptococcal illness was reflected in low carrier rates for

TABLE 1

*Respiratory Admissions in Irradiated and Control Groups of Barracks
Unit "C" Camp Sampson, N. Y., December 15, 1943-June 1, 1944
Rates Expressed as the Number of Recruits per 1,000 Admitted During
the Period of Training (Average 4.7 Weeks)*

| Diagnosis | High Intensity Barracks Group | | | | Low Intensity Barracks Group | | | |
|----------------------------------|-------------------------------|------|---------|-------|------------------------------|-------|---------|------|
| | Irradiated | | Control | | Irradiated | | Control | |
| | Cases | Rate | Cases | Rate | Cases | Rate | Cases | Rate |
| Catarrhal Fever | 398 | 70.4 | 539 | 91.6 | 443 | 81.5 | 434 | 76.0 |
| Streptococcal Infections | 79 | 14.0 | 92 | 15.8 | 93 | 17.1 | 95 | 16.6 |
| German Measles | 11 | 1.9 | 6 | 1.0 | 5 | 0.9 | 8 | 1.4 |
| Meningococcus Meningitis | 1 | 0.2 | 3 | 0.5 | 2 | 0.4 | 1 | 0.2 |
| All Other Respiratory Infections | 23 | 4.1 | 32 | 5.4 | 20 | 3.7 | 23 | 4.0 |
| Total Respiratory Admissions | 512 | 90.4 | 672 | 114.3 | 563 | 103.6 | 561 | 98.1 |

TABLE 2

Results of Throat Cultures for Group A Hemolytic Streptococci in Weekly Surveys of Samples of Barracks Populations and All Admissions for Respiratory Disease from Irradiated and Control Barracks

| Culture Group | High Intensity Group | | | | Low Intensity Group | | | |
|------------------------------------|----------------------|----------|-----------------|----------|---------------------|----------|-----------------|----------|
| | Irradiated | | Control | | Irradiated | | Control | |
| | No. of Cultures | No. Pos. | No. of Cultures | No. Pos. | No. of Cultures | No. Pos. | No. of Cultures | No. Pos. |
| Weekly Surveys | | | | | | | | |
| Barracks Populations | 659 | 3.8% | 642 | 3.7% | 655 | 2.1% | 634 | 3.2% |
| Admissions for Respiratory Illness | 512 | 5.9% | 672 | 5.7% | 563 | 5.7% | 561 | 5.6% |

the Group A hemolytic streptococcus both in samples of the normal recruit population and among admissions for respiratory disease (Table 2). It is also apparent from this table that carrier rates at this low level were not further lowered among recruits in irradiated barracks.

The rates for total respiratory admissions in the various groups represented in time series by calendar fort-

nights can be seen in Figures 3 and 4. For the high intensity groups the difference in rates is obviously greatest in the first two months of the study. During this period the reduction was in excess of 35 per cent. At this time the incidence of respiratory disease throughout the camp was still at a relatively high level following the influenza epidemic of November and December, 1943. In Figure 4 such differences in

FIGURE 3

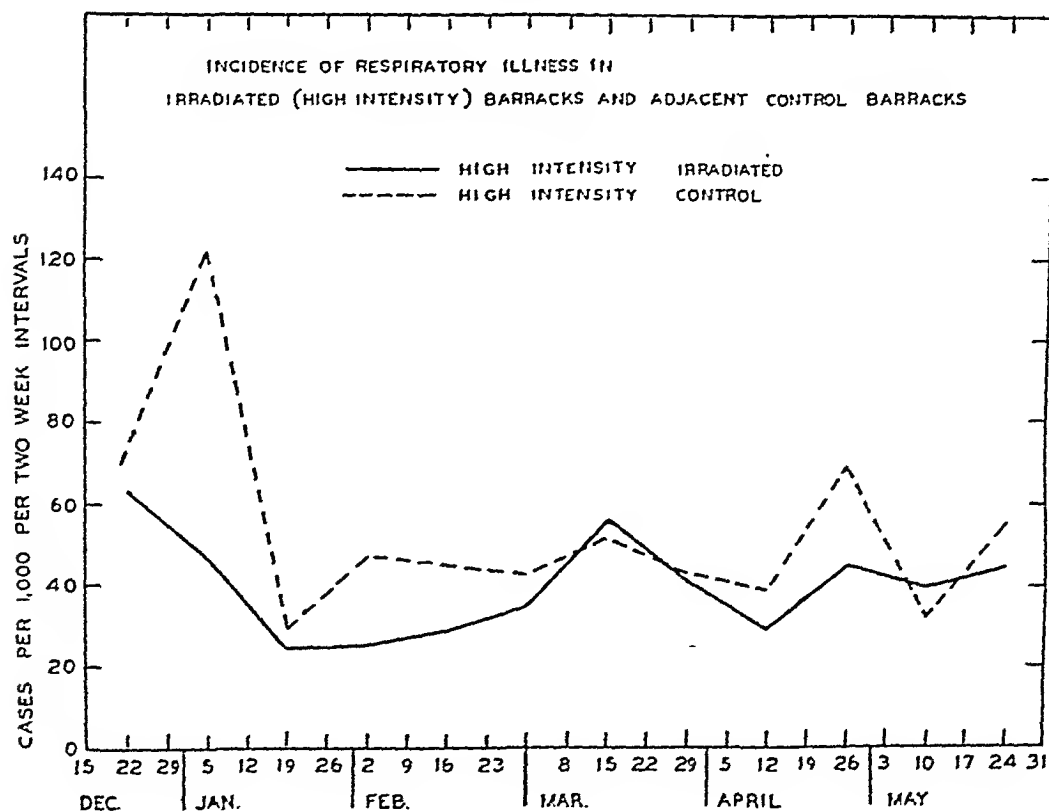
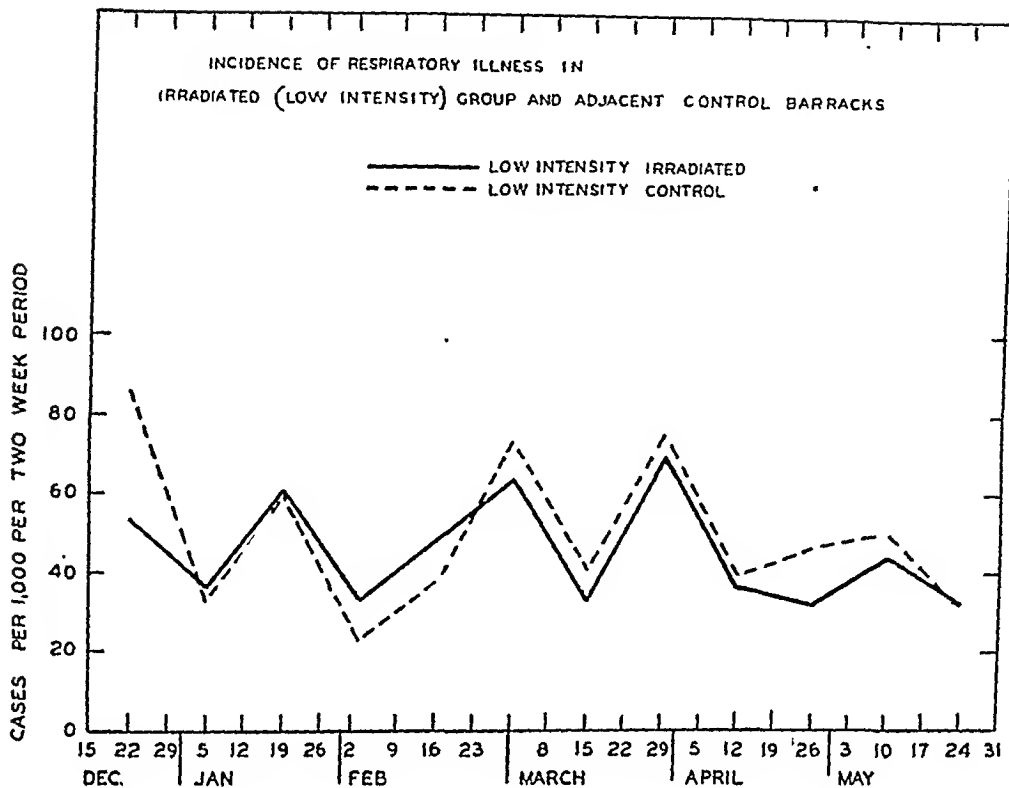


FIGURE 4



rates in the low intensity group between irradiated and non-irradiated barracks would seem likely to lie well within the limits of chance variation.

The striking similarity of the morbidity curves for low intensity irradiated and control groups affords an unexpected additional control to the results as found in the high intensity barracks. The marked difference in curves between the high intensity and its control group suggests that the dissimilarity is due to ultra-violet irradiation at an effective intensity.

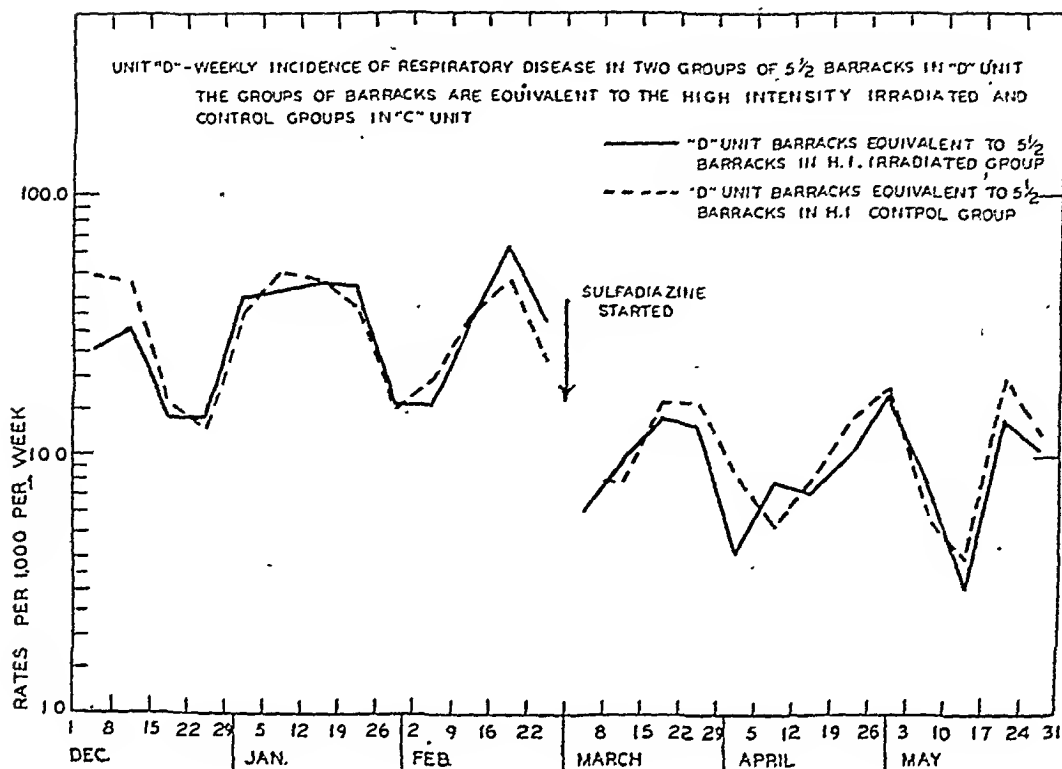
Figure 4, showing the rates for the low intensity groups on a weekly basis shows a succession of peaks and dips in the morbidity curve which occur regularly at intervals of about 5 weeks. This phenomenon was observed generally throughout the camp when weekly rates were computed for similar groups in other units of barracks (Figure 5). The undulations here can be seen to have persisted even after the

total rates were markedly reduced by sulfadiazine prophylaxis. An exception to this finding can be seen in a graph of the high intensity group of barracks where the regular undulations seem to have been abolished.

Study of this phenomenon suggested that it was a function of the orderly sequence of replacements through incoming companies occupying quarters in successive barracks vacated by graduations. As will be shown, the risk of infection is greatest in the middle weeks of training and that group of barracks with a majority of its occupants at this stage of training would show highest rates at this time. Similarly, lowest rates would occur when most of the recruits in the given segment of eleven barracks were at either the beginning or end of their training period.

This hypothesis was confirmed by a study of illness rates among recruits by number of weeks in training. In Figure

FIGURE 5



6 it can be seen that the rise and fall of incidence by weeks in training in the low intensity irradiated and control was nearly symmetrical with a peak in the third week. The curve for the high intensity irradiated barracks, however, is truncated and indicates the reason why this group fails to show the regular succession of peaks when rates are charted by calendar weeks.

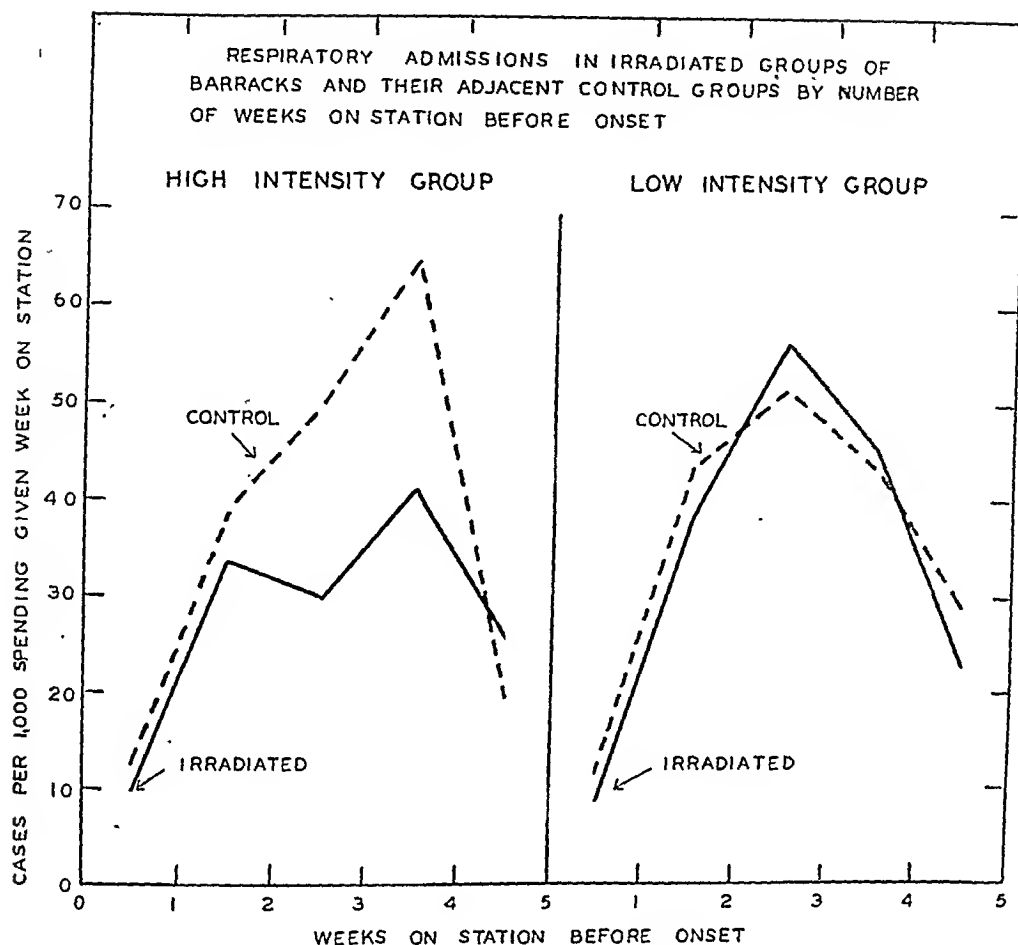
In assessing the statistical significance of the differences in morbidity between the irradiated and control groups, consideration should be given to variations in disease incidence within units of the groups themselves. In this instance the company (comprising 112 men and occupying one floor of a barrack) was chosen as the basic epidemiologic unit. For each group of five and one-half barracks, irradiated or control, the average number of men per company admitted to the sick list for respiratory infections was computed. For each series of companies in the barracks groups the standard deviation about the

average was calculated. The usual formulas were employed to estimate the likelihood of the differences observed in average rates for each group being due to chance.

This type of calculation was performed for all companies which were under observation 27 or more days during the course of the experiment. This requirement excludes a number of companies at the beginning or end of the experiment, but the exclusions are essentially equally divided among the groups. The number of admissions for each company was adjusted to the number of days' experience of the high intensity control group of companies, a figure slightly less than the average for all companies (Table 3).

By this method it appears justifiable to conclude that the 25 per cent reduction for the entire period of observation in respiratory illness observed in the high intensity irradiated group as compared with its control group or with the two control groups combined is prob-

FIGURE 6



ably due to irradiation and not due to chance. It is also obvious that the differences between the low intensity irradiated group and its control are such as could easily arise by chance alone. Further calculations not shown

on Table 3 show a significant deviation between the high intensity irradiated and low intensity control. All other combinations of groups were found to be within the limits of chance variation.

TABLE 3

*Mean Number of Admissions for Respiratory Illness per Company
in Irradiated and Control Groups of Barracks,
Significance of Difference Between Means for Irradiated and Control Groups*

| <i>Company and Barracks Group</i> | <i>No. of Companies in Group *</i> | <i>Mean No. of Admissions per Company †</i> | <i>Standard Error of Mean</i> | <i>z/σ</i> | <i>Probability of Occurrence by Chance Alone</i> |
|-----------------------------------|------------------------------------|---|-------------------------------|------------|--|
| High Intensity Control | 47 | 12.4 | 0.85 | 2.9 | 4 in 1,000 |
| High Intensity Irradiated | 46 | 9.3 | 0.64 | | |
| Low Intensity Control | 47 | 11.4 | 0.59 | 0.1 | 1 in 2 |
| Low Intensity Irradiated | 45 | 11.3 | 0.77 | | |
| Low and High Intensity Control | 94 | 11.9 | 0.50 | 3.2 | 1 in 1,000 |
| High Intensity Irradiated | 46 | 9.3 | 0.64 | | |

* Includes only companies with 27 or more days' exposure during period of observation.

† Adjusted to 32.1 days' company experience.

Four surveys were conducted during the winter and spring on the bacteria of the air of irradiated and non-irradiated barracks. In these surveys extensive use was made of the open blood agar plate exposed at different levels from the floor. Also, more quantitative devices operating on the impingement or bubbler principle were used for estimates of the number of bacteria found in a given volume of air.

Total saprophyte counts in these surveys of air bacteria were consistently lower in the irradiated barracks compared to their controls. The overall reduction in these test units was 50 per cent or greater than the controls. The greatest reduction of bacterial colony counts was found under high intensity sources. A very definite and marked correlation was also found to exist in both irradiated and control barracks between bacterial counts and proximity of the exposed plates to the floor strongly suggesting the relationship of the number of bacteria isolated from the air and its dust content.

A small series of blood agar plates with gentian violet 1/500,000 incorporated were exposed for periods of 5 hours to determine the presence of hemolytic streptococci in the air. Samples of dust were also collected from the floors of irradiated and non-irradiated barracks, and cultured for the presence of beta hemolytic streptococci.

The number of these tests for hemolytic streptococci in the air was too small for the assessment of statistical significance but streptococci were found consistently and were relatively numerous in the air and dust of the control barracks, whereas streptococcal colonies were found infrequently and in small numbers from either dust or air of the irradiated quarters.

COMMENT

The type and location of ultra-violet

sources were determined on the basis of the greatest expected measure of control in the exposed populations. For reasons already mentioned, sleeping quarters were chosen as the site of the installations. Within these quarters a combination of upper air and floor irradiation was employed. Irradiation of the lower air and floor was considered important because of many recent reports implicating the infected dust particle and lint as vehicles in the spread of respiratory infection. Direct observations have shown that dust and lint often carry pathogenic organisms and also that as the dust content of room air increases it is accompanied by a corresponding increase in the number of bacteria found in air samples. Whether dust particles stirred into the air by momentary turbulence created by bed making and other activities or whether organisms floating freely for indeterminate periods in the air of a room are of equal importance in the transmission of air-borne contagion, is not yet established. For this reason the present installation was directed both to the irradiation of dust in the lower air and on the floor and also to the more hypothetical droplet nuclei of the upper air of the sleeping quarters by overhead irradiation.

In this experiment the level of ultra-violet intensity seems to have been an important determining factor as to whether or not air-borne infections were effectively controlled. It is interesting that even in the low intensity barracks 121 watts of ultra-violet energy were produced in each dormitory, which is high for the volume of air irradiated in comparison with previously reported figures in other studies on the effect of ultra-violet light. Lurie (1944), in his recent experiments on the spread of tuberculosis in rabbit colonies, found that it was necessary to increase the intensity of ultra-violet barriers in order effectively to interrupt the spread

of this infection in a controlled environment.

One of the many questions as yet unanswered in the present study is whether an even higher intensity of ultra-violet energy would have increased the effect on the spread of respiratory illness in the barracks. A moderate increase in the number of fixtures and total intensity furnished is planned for studies in the coming winter and may help to elucidate this question.

The slightly greater intensity of irradiation from lamps which are new may have been the cause of the markedly greater percentage reduction of respiratory illness in the high intensity group in the first 2½ months of the study than in its later stages. On the other hand, differences in the nature and amount of illness in the early and later stages of the study may account for the apparent difference in the effect of the ultra-violet sources. By this hypothesis ultra-violet irradiation is most effective in times of high disease incidence such as occurred at Camp Sampson in December, 1943, and January, 1944, during the later stages of the influenza epidemic. This is because under epidemic conditions air-borne spread is considered to be an im-

portant factor. When disease rates drop below a certain minimum, infection is contracted by contact at close range with relatively greater frequency. Such a method of spread would not lend itself to control by ultra-violet sterilization of the air. The low rates encountered in the latter months of the study in the spring of 1944 may have represented an irreducible minimum as far as control through ultra-violet irradiation is concerned.

The unusually low illness rates in Unit "c" at Camp Sampson during the period of observation is revealed by comparison with similarly computed rates at the Naval Training Station, Newport, R. I., in 1940 and 1941 (Table 4).

In comparison with Newport the most notable lack of morbidity at Sampson can be seen to exist in German measles and streptococcal infections. This may have been due in part at Camp Sampson to the relatively short training period which averaged less than 5 weeks. This would serve to limit the amount of streptococcal illness which has been observed in other naval training stations to reach its peak of incidence from 6 to 8 weeks after the onset of training. It would also tend

TABLE 4

Respiratory Disease Among Naval Recruits
"C" Unit, Camp Sampson, N. Y., December 15, 1943-June 1, 1944
Compared with
Naval Training Station, Newport, R. I., November 1, 1940-July 1, 1941
Average Weekly Admissions per 1,000 During Training Period

| <i>Diagnosis</i> | <i>N.T.S., Newport, R.I.
1940-41</i> | | <i>Unit "C," Sampson, N. Y.
1943-44</i> | | <i>Ratio of Rates,
Newport to
Sampson</i> |
|---------------------------------|--|------------------------------------|---|------------------------------------|---|
| | <i>Cases</i> | <i>Rate per 1,000
per Week</i> | <i>Cases</i> | <i>Rate per 1,000
per Week</i> | |
| Catarrhal Fever Group | 2,098 | 26.2 | 1,875 | 17.6 | 1.5 : 1 |
| German Measles | 355 | 4.7 | 38 | 0.36 | 13.0 : 1 |
| Acute Streptococcal Infections: | | | | | |
| Scarlet Fever | 175 | 2.3 | 6 | 0.06 | 38.3 : 1 |
| Other Strept. Infections * | 418 | 6.4 | 128 | 1.2 | 5.3 : 1 |
| Total Respiratory Disease | 3,111 | 39.6 | 2,047 | 19.2 | 2.1 : 1 |

* Predominantly tonsillitis and pharyngitis, by clinical diagnosis; not necessarily confirmed by throat cultures.

to prevent the appearance of many cases of contagious diseases, such as German measles, which have relatively long periods of incubation. In the coming winter training will be lengthened to about 10 weeks. This decreases the rate of overturn but may give a greater opportunity for these specific bacterial and virus diseases to develop during the period of recruit training. If such is the case a more definite assessment of the effect of ultra-violet irradiation will be possible.

SUMMARY

Ultra-violet irradiation of the floors and upper air of barracks housing naval recruits was accompanied by a 25 per cent reduction of respiratory illness in those barracks equipped with high intensity sources (235 watts of ultra-violet energy per dormitory sleeping quarters for 112 men) as compared with illness in the adjacent control barracks.

This effect was most noticeable in the early winter months when illness rates were at a generally high level throughout the camp. At this time the reduction of incidence in barracks irradiated with high intensity sources as compared to the controls was approximately 35 per cent.

Streptococcal illness and carrier rates were at a very low level. These low levels were not further reduced among men living in irradiated barracks.

Bacterial counts from air samples in irradiated barracks showed a definite reduction (50 per cent) in total saprophyte colony counts as compared with counts from non-irradiated control barracks.

Beta hemolytic streptococci isolated from air and dust were found more frequently and in greater numbers in control barracks than from irradiated sleeping quarters.

In view of the fact that reduction in morbidity rates was marked in the high intensity irradiated group only in the first months of the study period, the results of the experiment of 1943-1944 should be interpreted with caution. The final assessment of the limits of effectiveness of ultra-violet irradiation in barracks must await further observations during the coming winter of 1944-1945.

NOTE: The authors wish to express thanks and appreciation to Commodore H. A. Badt, U.S.N., commander of the United States Naval Training Center, Sampson, N. Y., whose aid and support made it possible to carry out this study, and to Captain T. A. Fortescue, (MC) U.S.N., Senior Medical Officer of the Training Center, who provided generously of all facilities and coöperated actively in the conduct of the project. The authors also acknowledge the generous coöperation and interest of the Preventive Medicine Division of the Bureau of Medicine and Surgery in the conduct of this investigation.

Tuberculosis in the Armed Forces*

COLONEL ESMOND R. LONG, MC, F.A.P.H.A., AND
MAJOR EDWARD A. LEW, MAC

*Chief Consultant on Tuberculosis, Office of The Surgeon General, U. S. Army;
and Chief, Statistical Analysis Branch, Medical Statistics Division, Office of
The Surgeon General, U. S. Army, Washington, D. C.*

MOBILIZATION began shortly after proclamation of an unlimited national emergency in May, 1940. The system of Selective Service for induction into the Army was established in September, 1940, and voluntary enlistment in the Army and Navy was rapidly accelerated. Army and Navy Reserve officers were called to active duty and the National Guard was called into federal service.

A physical examination was required of every man prior to acceptance for military duty. Both Army and Navy set rigid standards to exclude men unable to stand the physical strain and other exigencies of service. Disease and abnormality likely to impair efficiency or lead to disability precluded acceptance. Among the diseases requiring rejection was tuberculosis.

The Army had had an unfortunate experience with tuberculosis in World War I, when many thousands of tuberculous soldiers were unwittingly inducted into service because of inadequate methods of detecting the disease. Every effort was made to exclude tuberculosis at that time by the best method available, viz., physical examination, with emphasis on auscultation and searching examination for post-

tussic rales. Roentgenography was not sufficiently developed to be widely used, or good enough to detect the majority of cases of minimal tuberculosis.

The lessons of World War I were well known when mobilization for World War II began. Prompt effort was made to capitalize on the knowledge. It was clear to the Medical Corps of the Army that x-ray examination should be used routinely to exclude tuberculosis. X-ray photography had been highly developed in the intervening quarter of a century, and the mass survey method for detection of pulmonary tuberculosis had become commonplace.

In spite of this knowledge, however, x-ray examination was not universal when mobilization began. Speed in raising troops was essential and the number to be called was large. In the Army early decentralization of command was ordered for the sake of efficient operation. The general method of induction in all corps areas (later service commands) was the same, and identical standards of physical examination were followed in induction, but there was sufficient autonomy in detail so that variation in procedure, including induction physical examination, occurred. In the first three corps areas, comprising the states along the north and central Atlantic seaboard, x-ray examination was made obligatory from the outset for men inducted through the Selective Service System. In the

* Presented at a Joint Session of the Health Officers, Vital Statistics, and Epidemiology Sections of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

remaining six corps areas, however, x-ray examination of Selective Service registrants was far from universal at first. For many months, moreover, men were accepted for voluntary enlistment on the traditional basis in which x-ray examination was used only when special circumstances made it appear desirable. Steadily, however, the proportion of Selective Service registrants who were x-rayed before induction rose. Officers called to active duty and all applicants for commission throughout the country were x-rayed. X-ray examination finally became universal in the spring of 1942, but only after approximately one million men had been admitted without x-ray examination.

In the Navy the photofluorographic mass method of examining the chests of recruits was inaugurated in January, 1941. Its use spread rapidly through the Naval Training Stations during 1941, and in January, 1942, a general order was issued requiring roentgenographic examination of all Navy and Marine Corps personnel as part of the physical examination to determine physical fitness for appointment, enlistment, or call to active duty.*

In the Army a variety of methods was used. In the early months of mobilization x-ray films of whatever type was most convenient and practical were used. Full size celluloid and paper films were employed in the great majority of cases. Later, with the rapid development of equipment and improvement of procedure, photoroentgenography with its speed, convenience of processing, and attendant filing economy, became standard. Four by five inch films, later changed to four by ten inch stereoscopic films, were chosen for routine work.

STANDARDS

The objective of physical standards in both Army and Navy as far as tuberculosis was concerned, was to exclude all active disease and inactive disease that might be reactivated under strain of military duty. Standards based on x-ray examination were not included in the regulations for acceptance of enlisted men prior to mobilization, and it was necessary to draw them up *de novo*. In the preparation of these standards advice was obtained from a Subcommittee on Tuberculosis set up within the Division of Medical Sciences of the National Research Council. Early editions of mobilization regulations in the Army defined the limits of acceptable arrested primary tuberculous lesions closely, an action that was necessary at a time when approximately a hundred induction stations were pioneering in a process in which rapidity of action and decision were paramount. Subsequently, with greater familiarity with procedure and improvement in skill on the part of induction station examiners, limits in size and character of lesions were set less arbitrarily, and at the same time there was extensive reexamination of men rejected under the earlier rigid standards. Current standards leave much to the judgment of induction station roentgenologists with respect to arrested primary lesions, while continuing the provisions, with added emphasis, on the exclusion of infiltrative lesions of questionable activity. The following paragraphs quoted from the current edition of *Mobilization Regulations* (War Department, April 19, 1944) indicate the limits of acceptability of latent tuberculous lesions:

"87. General Service.—a. Calcified residuals of primary tuberculosis in the pulmonary parenchyma or hilar lymph nodes, provided the size, number, and character of such lesions are not such as to suggest the possibility of reactivation. Well calcified masses in adult white subjects usually represent entirely

*For data with respect to tuberculosis control measures in the Navy, when direct citation of reference is not made, the authors are indebted to the Preventive Medicine Division, Bureau of Medicine and Surgery, U. S. Navy.

healed lesions. Partially calcified and therefore presumably partially caseous masses in younger subjects, particularly in persons of other than the white race, are potentially hazardous. Clinical judgment is important in rendering a decision. In those cases in which a decision cannot be made on roentgenological grounds alone, it is essential that a careful examination be made by an examiner with special experience in tuberculosis, taking into account the age of the subject, history, and the possible presence of nonpulmonary tuberculosis . . .

"g. The following conditions are temporarily disqualifying: . . .

"(5) Scarred fibroid or fibrocalcific infiltrative tuberculous lesions of the lungs represented in roentgenograms as *sharply demarcated, strand-like or well defined, small, nodular shadows not exceeding a total area of 5 square cm.* may be accepted after deferment until subsequent examination clearly demonstrates that the lesion is stationary and not likely to be reactivated. The minimum period of time to determine this is 6 months. It must be recognized that either progression or regression of the lesion indicates instability. Clinical judgment, taking into consideration other factors, including age and race, must be exercised in estimating the likelihood of reactivation. Experience indicates a greater likelihood of reactivation of an apparently stable lesion in persons under 25 years of age than in older persons.

"59. Nonacceptable.—*a.* Tuberculosis of the lungs or tracheobronchial lymph nodes except as defined in paragraphs 57*a* and *g*(5). Small infiltrative tuberculous lesions, unless of *sharply defined linear or nodular appearance on roentgenograms*, as described in paragraph 57*g*(5), are disqualifying even though involving a total area of less than 5 square cm. and apparently stable over a period of 6 months.

"*b.* Fibrinous or serofibrinous tuberculous pleurisy, and serofibrinous pleurisy of unknown origin. Inasmuch as pleurisy, with or without effusion, is a frequent manifestation of active tuberculosis, all persons who have apparently recovered from pleurisy will be examined with the greatest care. Authenticated history of pleural effusion of unknown origin within the last 5 years; chronic fibrous pleurisy sufficient to cause marked retraction of the chest wall and of the mediastinum or to cause a density in the roentgenogram which completely obscures a considerable section of the pulmonary fields."

In the Navy causes for rejection for original entry into the service, as well

as for hospitalization for further study, treatment, and disposition following subsequent examinations, are established as follows (*Bu. Med. Letter*, 13 June, 1944, to All Ships and Stations):

(a) Any evidence of re-infection (adult) type tuberculosis, active or inactive, other than slight thickening of the apical pleura or thin solitary fibroid strands.

(b) Evidence of active primary (childhood type) tuberculosis.

(c) Extensive multiple calcification in the lung, parenchyma, or massive calcification in the hilus, or any calcification of questionable stability.

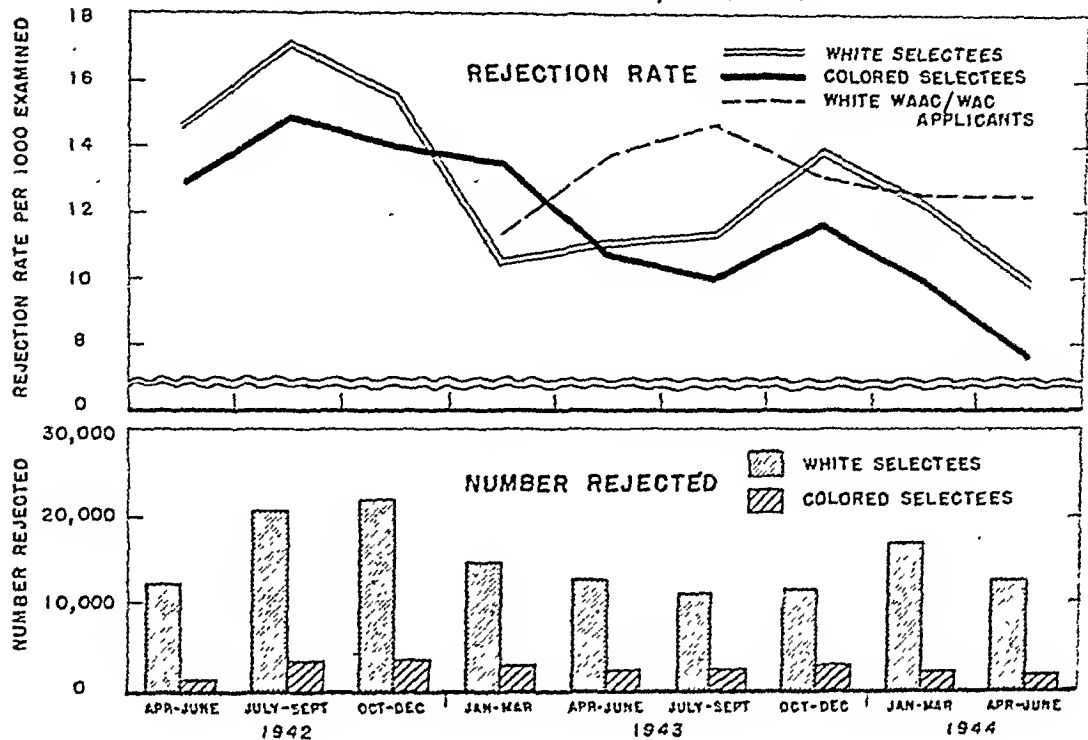
(d) Evidence of fibrous or sero-fibrinous pleuritis, except moderate diaphragmatic adhesions with or without blunting or obliteration of the costo-phrenic sinus.

(e) Other disqualifying defects demonstrable by a roentgen examination of the chest.

Since men who are accepted will ultimately have the status of veterans, arrangements were made by the Army at the beginning of mobilization for filing films of accepted men in the Veterans Administration. This was particularly appropriate in view of the fact that from the very outset it was contemplated that every soldier would have a chest x-ray examination on discharge, a system permitting comparison of entrance and separation films, and providing for objective determination of acquisition or aggravation of lesions in service. Films of accepted Navy personnel have been filed with individual medical records in the Navy Department.

The million of films that have been forwarded to the Veterans Administration from induction stations, together with the proportionately smaller but already numerically large stream from points of discharge, have made the Veterans Administration file an enormous assemblage. Some twenty million x-ray examinations have been made of men and women in the course of pre-induction, induction, enlistment, and officer candidate school examinations.

FIGURE 1

TREND OF REJECTIONS FOR PULMONARY TUBERCULOSIS
AT INDUCTION STATIONS, BY COLOR

REJECTION RATES

Approximately 150,000 men have been rejected at armed forces induction stations because of pulmonary tuberculosis. Figure 1 indicates the number of men reported as rejected for pulmonary tuberculosis, and the resulting rejection rate for selectees at induction stations, as well as the corresponding rate for applicants for enlistment in the Women's Army Corps.* The figure does not take into account the rejections by local boards, which preceded those at induction stations. These amounted to 1 to 2 men per 1,000 ex-

amined. It will be noted that the rate of rejection was high in 1942, low in the first three quarters of 1943, high in the last quarter, and low in 1944. The high figure for 1942 represents rapidly increasing use of roentgenography in the induction stations, and high standards, with rejection of many men for calcified primary tuberculous lesions that were later considered acceptable.

The decline in the rejection rate during the latter part of 1942 may be attributed to the liberalization of standards in the Army, permitting acceptance of men with large healed primary lesions, a liberalization put in effect with certain specified safeguards. The sharp drop early in 1943 also reflects a notable lowering of the average age of men called for examination, as is indicated by the fact that in the early months of 1943 about 40 per cent of the selectees examined were under 20

*The number of men reported as rejected for pulmonary tuberculosis and the corresponding rejection rates indicate somewhat the actual incidence of pulmonary tuberculosis found at induction stations to the extent that cases presenting serious disqualifying defects in addition to tuberculosis were sometimes presented as rejected for reasons other than tuberculosis; the resulting understatement has been variously estimated at being in the range from 10 to 15 per cent.

years of age as a result of new legislation which made such men available to the Army for the first time in December, 1942. The rise in rejection rate in the latter part of 1943 is in large part fictitious, being due in considerable measure to reworking of the lists of men previously rejected, in the effort of the Selective Service System to fill required quotas. The current low rate of rejection corresponds to induction of a group of young married men, relatively few of whom apparently are tuberculous.

In passing it is to be noted that the rate of rejection for Negroes is lower than that for whites and that the rate for women volunteering for enlistment in the Women's Army Corps is higher than that for men. A critical analysis of the effect of race and age on the prevalence rate of tuberculosis among selectees, indicating relatively high rates for men in the upper age brackets; has been made by Karpinos.¹ In this connection it should be noted that the relatively low incidence of tuberculosis among selectees reflects the findings for a group with a very young age distribution. Numerous reported analyses of the experience of individual induction stations, and comparisons with British and Canadian figures, have been reviewed by Freer.²

The follow-up of rejections is one that has varied greatly with the interest and initiative of individual communities. The routine procedure at induction stations is to report each man rejected to state Selective Service System Headquarters, to which originally was tacitly left the responsibility of making proper report to state health authorities. Obviously, with nothing mandatory, this system was not highly effective. Arrangements for proper reporting were later effected through conferences in the National Headquarters of the Selective Service System, at which the Army, Navy, and U. S. Public Health Service were repre-

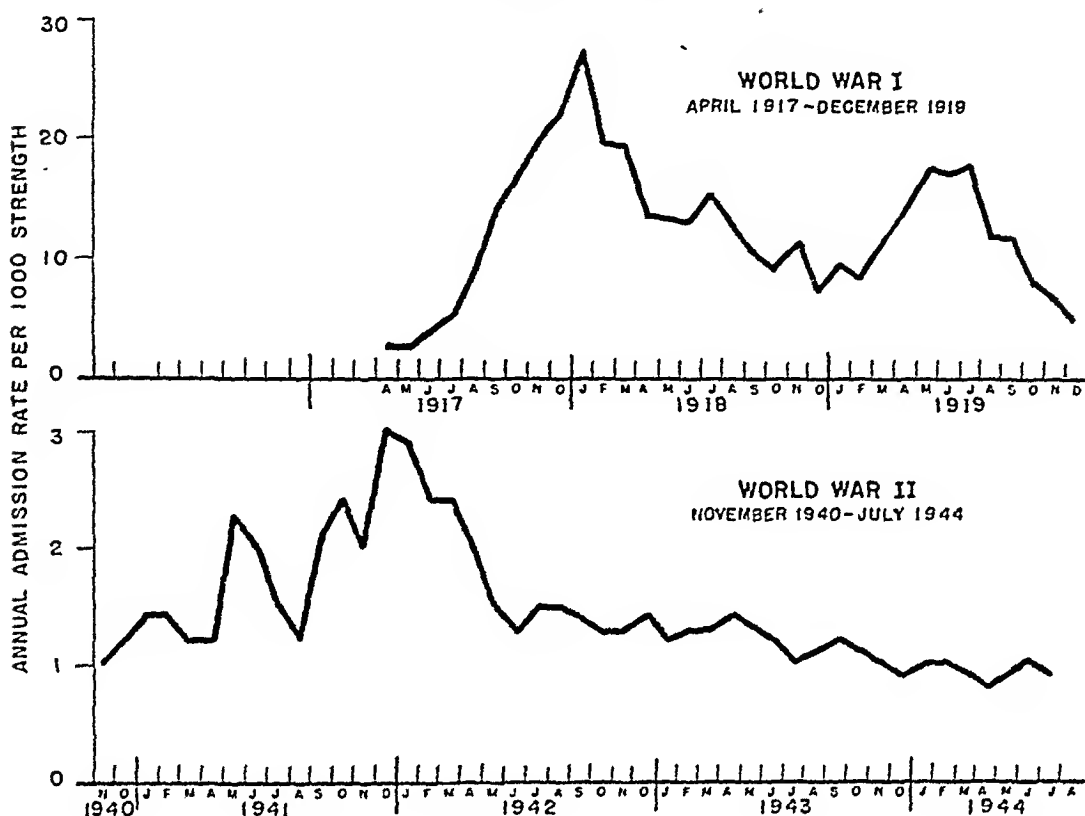
sented.³ In the meantime, local cooperation was in effect in many states and communities. In New York City, for example, the Bureau of Tuberculosis of the City Department of Health received notice every evening of men rejected at the New York City induction station on that day, a station that at times examined as many as 4,000 men daily. In many large states report to state health authorities, if not quite as rapid, was practically as efficient.

It has been evident even recently, however, that reporting is not universal, and an Army Regulation requiring reporting of communicable diseases, which applies to men rejected from enrollment as well as those acquiring disease in the Army, has been strengthened and reestablished as pertaining to tuberculosis as well as other communicable diseases. This regulation (*War Department Circular No. 313*, 24 July, 1944, Section III) reads in part as follows:

"... tuberculosis is a reportable disease in all states and falls within the provisions of paragraph 44, AR 40-1080, 10 December, 1943. Therefore, at the time of discharge from the Army, all cases of tuberculosis will be reported as prescribed in AR 40-1080, including those to be transferred to a veterans' facility. The report will include sufficient identifying data so that public health officials may readily locate the individual upon his return to his home or other designated place. The full name, age, marital status, and prospective street address, if known, will be included. The report will also indicate the form of tuberculosis (e.g., pulmonary, renal), whether active or inactive, and whether or not the sputum contains tubercle bacilli. If the patient is to be discharged to a Veterans Administration facility, the name and address of the facility will be stated.

"2. Cases of active or probably active tuberculosis diagnosed at an induction station or other Army installation passing on physical qualifications, and rejected for military service, also come under the provisions of the regulation cited above and will be similarly reported to the state health officer by the commanding officer of the induction station or other installation."

FIGURE 2
TREND OF ADMISSION RATE FOR TUBERCULOSIS - WORLD WARS I AND II
ARMY IN THE CONTINENTAL UNITED STATES



ARMY ADMISSION RATE

The Army admission rate for tuberculosis, stated as admissions per 1,000 men per year, indicates the total number of cases of tuberculosis admitted to hospital for care or observation. It includes the active cases discovered and latent cases hospitalized for determination of activity. It is of interest to compare the rates of admission for all forms of tuberculosis* for this war with those recorded for 3 years including the period of World War I. The rate in this war has been approximately one-tenth of that in the previous one (Figure 2). The drop reflects the lowered incidence of tuberculosis in the present period and the greatly improved

procedure for excluding cases at the induction physical examination. The figures given are for the Army in continental United States. A significant feature of each curve is the early rise in incidence, which is believed to reflect the imperfections of early development, when methods were immature, personnel was gaining experience, and many cases failed to be detected. The high rate represents a weeding out of cases admitted during this early period. The succession of peaks, reaching a rate of 3 per 1,000 between May, 1941, and May, 1942, probably represents in large measure the discharge of men admitted in the first rapid mobilization, when a million men were accepted without x-ray examination. The low rate after that point corresponds to a period when all men had been x-rayed before acceptance.

* Over 90 per cent of the total admissions for tuberculosis have been for pulmonary tuberculosis.

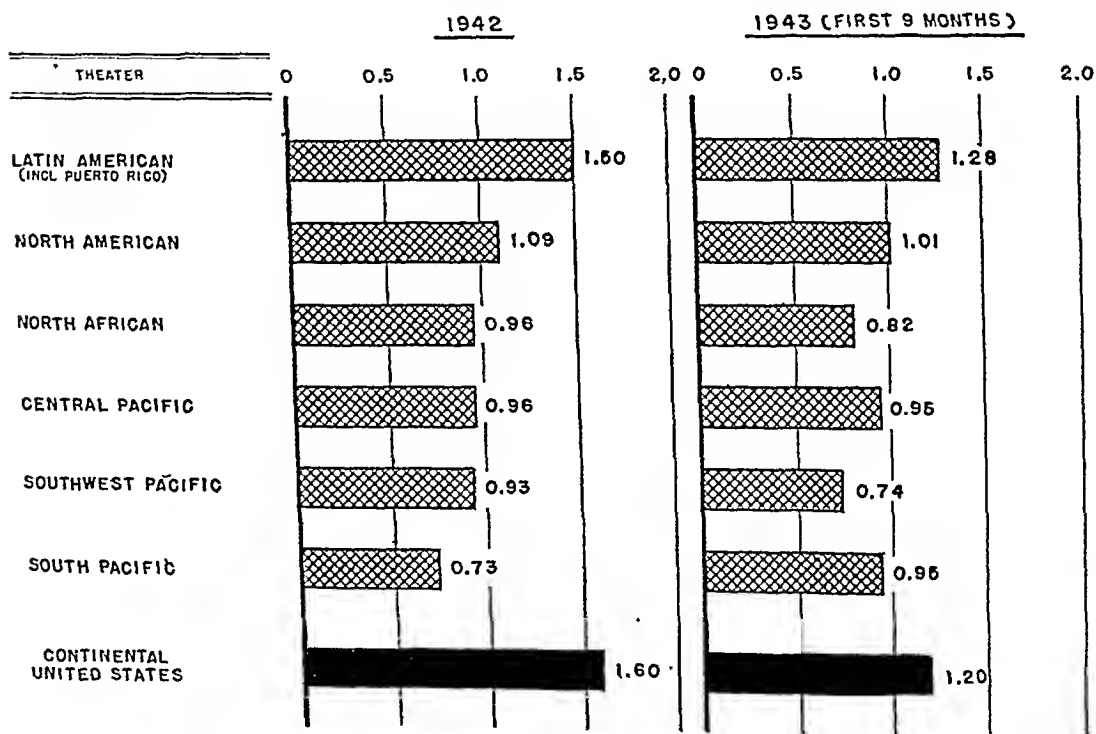
Attention is called to the second hump in the admission rate for tuberculosis in World War I. This corresponds to the summer of 1919, and represents tuberculosis discovered on discharge. A similar rise may reasonably be expected with mass demobilization and the attendant re-x-ray examination in this war.

The admission rate for tuberculosis overseas has been consistently lower than that for troops in continental United States (Figure 3). The same observation was made in World War I. The rate for the European Theater of Operations is not included because comparable data are not available for that theater. The relatively low rate for most theaters is explained on the basis of the screening effected during training preliminary to going overseas. While x-ray examination is not routinely repeated, it is regularly carried out when

there is any suspicion of chest disease. The Army overseas represents a selected group of men who have had months of Army experience, during which the less fit have been removed. One conspicuous exception to the low rates is in the Latin American Theater. A relatively high rate there is due to the fact that one component, the Puerto Rican group, has an incidence considerably in excess of the average for the Army. A point to be borne in mind in considering the admission rates overseas through September, 1943, is that these rates represent by and large a relatively short period of exposure to different climatic and other environmental conditions overseas.

Comparison of final chest x-ray films of men breaking down in service with their induction films has shown that in the majority of instances the disease was present and should have been de-

FIGURE 3
ADMISSIONS FOR TUBERCULOSIS, OVERSEAS THEATERS, 1942-43
ANNUAL ADMISSION RATE PER 1000 STRENGTH



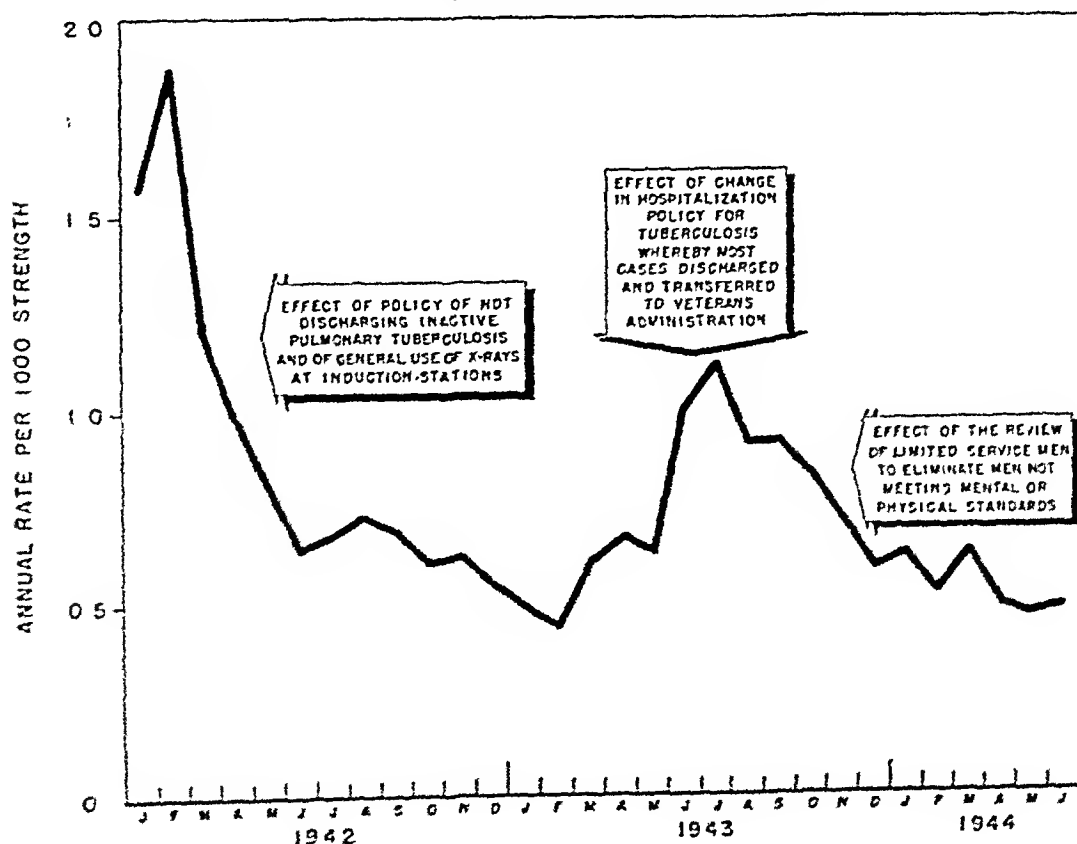
tected at the time of induction. This was anticipated as a result of a review made in the Office of The Surgeon General on men accepted at induction stations in the spring, summer, and fall of 1942.⁴ This review, made on a sampling basis covering all induction stations, indicated an expectancy of later discovery of tuberculosis of approximately 15 men per 10,000. This compares closely with the actual recorded admission rate of 1 to 1.5 per 1,000 men per year, which has held since that time. The tuberculosis discovered on reexamination of induction x-ray films varies from faint cloudiness, distinguishable only in the light of later progression, to infiltration that could have been overlooked only through gross clerical error. To the credit of present operation of induction

stations it may be said that mistakes of the latter type are rare today. The errors in omission still being made are the result of high pressure work and occasional failure to note small lesions not readily discernible in the lung fields.

DISCHARGES FROM THE ARMY BECAUSE OF TUBERCULOSIS

The trend of discharge from the Army because of tuberculosis is indicated in Figure 4 for enlisted men. The rate has varied in the last 3 years from approximately 2 to 0.5 per 1,000 men per year, and has been affected markedly by changes in administrative policy on discharge. In early 1942 many men were discharged who were found not to meet the current rigid standards for induction. As previously

FIGURE 4
TREND OF DISCHARGES FOR TUBERCULOSIS
JANUARY 1942 - JUNE 1944



pointed out, many men had been admitted without x-ray examination and a re-study of this large group brought to light numerous cases of active tuberculosis and inactive tuberculosis of an extent not acceptable under the provisions of the current mobilization regulations. What was considered to be an unjustifiable waste of capable man power was stopped in April, 1942, when a directive (*War Department Circular No. 98*, 3 April, 1942) was promulgated, prohibiting the discharge of men with inactive tuberculosis. The effect of this directive is shown in the steep downward slope of the curve for the first half of 1942. In the summer of 1943 an order (*War Department Circular No. 109*, 26 April, 1943) was put in effect, calling for the prompt discharge of cases of tuberculosis and transfer to the Veterans Administration. Active cases, previously held in Army hospitals, were separated from the service at a rate greatly exceeding that which had prevailed for a year past. The effect of this directive is clearly shown in the figure. The rate subsided only slowly after this directive, because a new force had entered, viz., another order (*War Department Circular No. 161*, 14 July, 1943) which directed that, with certain specified exceptions, all men not meeting the prescribed minimum standards for induction would be discharged from the service.

After this last weeding out, the general policy on discharges was changed so as to retain in the Army all men below minimum standards who could effectively fill some position in the service. This operated to keep in the Army minimal apparently stabilized cases which might have been discharged previously. As a result, the discharge rate soon dropped to the current low level of approximately 0.5 per 1,000 men per year, a figure representing a discharge rate of approximately 3,500 men

per year in an Army of 7,000,000 enlisted men.

A feature of practical interest is shown in figures recording the effect of age on the discharge rate (Table 1). An abrupt rise is evident after the age period 35-39. The rate for men below 20 years of age is only 0.3 per 1,000 men per year.

TABLE 1

| Age | Annual Number of
Discharges for Tuberculosis
per 1,000 Men |
|------------------|--|
| Under 20 | 0.30 |
| 20-24..... | 0.65 |
| 25-29..... | 0.88 |
| 30-34..... | 1.02 |
| 35-39..... | 1.32 |
| 40 and over..... | 2.56 |

TUBERCULOSIS IN THE NAVY

The Navy recorded a sharp rise in the total admission rate for tuberculosis in 1941 and 1942, after a steady decline in rate for nearly twenty years.^{5,6} The rise was attributable to improved case finding carried out by the photofluorographic method on men already in service. Since 1943 the admission rate for tuberculosis in the Navy has dropped in essentially the same manner as in the Army. The rate, which had reached 2.0 in 1941 and 3.1 in 1942, dropped abruptly to 0.66 in 1943, computed on a strength of approximately 2,000,000 men, as indicated by officially published figures. Since January, 1943, induction station examination has represented a joint operation of the Army and Navy, so that a distinction on the basis of rejection cannot be made.

Invalidings from the service in the Navy rose sharply from 0.7 per 1,000 men per year in 1940 to 1.2 in 1941 and 2.5 in 1942. The rate dropped again to 1.4 (provisional) in 1943 and 0.5 (projected) in 1944.

The Bureau of Medicine and Surgery of the Navy has recently issued an

order (*Bu. Med. Letter*, 13 June, 1944, to all Ships and Stations) that will be of far-reaching importance in the control of tuberculosis in that service. Not only is roentgenographic examination required as part of the physical examination to determine physical fitness for original entry into the service and for active duty, but such examination is required also of all Naval and Marine Corps personnel who have not been examined for twelve months. Photofluorographic equipment has been made widely available for the purpose. As in the case of Army personnel, x-ray examination is required prior to discharge or release from active duty.

DISPOSITION OF CASES IN THE ARMY AND NAVY

Reference has been made to the Army directive requiring separation of men with tuberculosis from the service as soon as this is practicable. Provision is made, however, for hospitalization of all men whose recovery might be jeopardized by immediate discharge, and for the care of these men the Army maintains large tuberculosis services, with approximately 1,750 beds, in two of its general hospitals, viz., Fitzsimons General Hospital near Denver, Colo., and Bruns General Hospital, near Santa Fe, N. M. The latter service was established specifically for the care of cases received from overseas. Approximately 120 cases a month are evacuated from foreign theaters at present. Through the operation of these large tuberculosis services the Army is able to control the rate of discharge to Veterans Administration hospitals. A principal objective in the care of tuberculous patients in Army hospitals is indoctrination on the necessity of continued care for the patient's own sake and for the protection of his family and associates after discharge to the Veterans Administration.

In the Navy, patients with tubercu-

losis are treated in all naval general hospitals and in a number of convalescent hospitals. Certain officer personnel, by arrangement with The Surgeon General of the Army, are treated at Fitzsimons General Hospital, Denver, Colo., and certain enlisted personnel at the U. S. Naval Hospital, Corona, Calif., and at Fitzsimons General Hospital. As in the Army, arrangements are in effect for transfer, under conditions specified in Navy regulations, to the Veterans Administration.

The Veterans Administration maintains nineteen tuberculosis hospitals and has additional beds for tuberculosis in twenty-six general hospitals. On July 21, 1944, 6,030 beds were occupied and 1,489 unoccupied. Of the occupied beds approximately 40 per cent are used by World War II veterans. Between December, 1941, and July 31, 1944, there were 9,370 admissions of World War II veterans with pulmonary tuberculosis (including readmissions, which are estimated as approximately 20 per cent). Of this number, 6,161 were adjudged service-connected and 3,209 not service-connected. Figures for the period up to March 15, 1944, indicate that 75-80 per cent of the adjudicated claims for pension for tuberculosis represent Army applicants, and the remainder former members of the Navy, Marine Corps, and Coast Guard. Of the 4,293 cases adjudicated up to that time, in which pension was allowed, 3,590 (83.6 per cent) were Army cases, 584 (13.6 per cent) Navy cases, 80 (1.9 per cent) Marine Corps cases and 39 (0.9 per cent) Coast Guard cases.

SUMMARY

1. The armed forces of the United States have attempted to exclude, in so far as possible, all cases of active or potentially active tuberculosis by chest x-ray examination prior to acceptance of men and women for military service or call to active duty. The procedure followed has resulted in a drop in the inci-

dence of tuberculosis, as determined by annual hospital admission rates, to the lowest figures on record. The rates for both Army and Navy are less than one-tenth of the average rates in the first World War.

2. Discovery and exclusion of cases of tuberculosis by x-ray examination has not been perfect, and a certain number of active cases not detected at the time of induction are later discovered. These and cases that develop without previous manifestations of tuberculosis are discharged from military service after a period of initial treatment. The annual rate of discharge from both the Army and the Navy for tuberculosis is now approximately 0.5 per 1,000 men per year.

3. Both Army and Navy require chest x-ray examination before discharge of men and women from service.

4. The discovery and rejection of cases of tuberculosis in preënlisment and pre-induction examinations, the detection of cases in the course of military service, the discovery of cases in the examination required on dis-

charge, and the system of reporting to state health authorities, now in effect, have made the tuberculosis programs of the armed forces an outstanding contribution to the national program of tuberculosis control.

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Nutrition Foundation Grants

The Nutrition Foundation, Inc., New York, N. Y., in March announced that grants totaling \$258,100 had been made covering six new research projects and twenty-four renewals of grants for studies now under way. At the same time it was announced that twenty-one areas of knowledge are represented among those in which increased basic information has resulted from the studies supported by the Foundation during the past three years.

Among the new grants made was one of \$47,500 for a 5 year study of nutrition at Harvard University in relation to maternal health. The Public Health Research Institute of New York

City received \$10,500 for a 3 year study of the development of micro-chemical methods for evaluating nutritional status. The School of Medicine and Dentistry at the University of Rochester received \$10,000 for a 2 year study of the nature and significance of a pigment associated with vitamin deficiency. Other new grants included one to the University of Pittsburgh for studies on self-selection of diets, and to Washington University for studies on the mechanism of carbohydrate reactions in animal tissues. Also a grant to the University of Wisconsin to study the characterization of compounds containing bound biotin and other vitamins.

Industrial Hygiene and Labor*

HERBERT G. DYKTOR, F.A.P.H.A.

*Chief, Bureau of Industrial Hygiene, Division of Health,
City of Cleveland, Ohio*

WE have now reached the point where labor, especially the organized portion of it, has begun to realize the value and benefits resulting from industrial hygiene activities. Consequently, it is not surprising to find labor taking an active interest in our work, and viewing critically some of its phases. Under the circumstances, this attitude is reasonable enough, but it calls for elucidation. We should, therefore, review ourselves to a certain extent and from the outcome try to develop a policy which will be fair to both industry and labor. In any event, let us at least be clear on the why's and wherefore's of some of our doings.

For many years members of the industrial hygiene profession have toiled to clean up the workers' environment in industry. A look backward leads one to believe that they have done a commendable job, despite opposition, lack of numbers, and inadequate appropriations. Much still remains to be done, however, as this presentation will point out.

Aside from technical obstacles, the task of industrial hygienists was rendered more difficult because of the early opposition of industrial management, which viewed with some suspicion any suggestion that concerned the improvement of its workers' environment.

It regarded such suggestions, by and large, as altruistic or paternalistic, and it took a lot of arguments backed up by good factual evidence to convince it that a safe and sanitary workroom was good business.

The industrial hygienist's approach was necessarily through management, because any program of action was bound to involve expenditure. Management alone was in a position to make a capital outlay and it was felt that it would make it if the program were economically sound. It is not pertinent to this discussion to detail the history of the campaign and it should suffice here to say that industry, as a whole, is now fully convinced that a safe and sanitary environment is necessary to maintain and promote its workers' health. A measure of this conviction is evidenced by industry's annual expenditure of many millions of dollars to further this objective.

Of course, not all industrial establishments have fallen in line as yet, but in due time they will do so. There are still some die-hards who feel that industrial hygiene endeavors are a lot of poppycock; and we still have the poor with us, the very small shops operating on a shoestring for whose especial benefit something must be worked out. Therefore, industrial hygienists are not, and I do not think ever will be, entitled to rest on their laurels in that respect.

In the course of their activities, industrial hygienists have come to realize

* Chairman's address presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944

that their approach to the solution of the problem, namely through industrial management, has been one-sided and that there is another party, namely organized labor, that should be convinced of the need for competent guidance. It has been found that it is not conducive to fruitful operations to have a receptive industry and an unreceptive labor attitude. Industrial hygienists have made demands of industry which are not only to its advantage but are also greatly to the benefit of the workers, and the least that could be expected of the latter would be intelligent, not to say sincere, coöperation. If it is good business for the employer to have healthy workers in healthful surroundings, it is also definitely good business for the workers to be in good health and work in hygienic shops. The employer may get other workers to replace the disabled, at high cost of course, but it is not always possible for the worker to regain his full health and full earning capacity. Little effort has been made to work on labor at large, and, in particular, to convince it of the necessity of complying with protective regulations and of intelligently using preventive facilities, provided and designed for its benefit. Labor looks askance at all this activity, questions its purpose, and wonders about its scope and implications.

Labor has seen safety programs and measures brought into industry and has acquiesced because the results were visibly obvious to all concerned: it is not possible to gainsay a lost eye or hand. However, this condition did not prevail and has not prevailed, in regard to preventive measures concerning health matters which are neither immediately visible nor spectacular. For instance, there was much ado at first about preemployment medical examinations. Labor refused to have its members examined on the assumption that these examinations were to be used for ulterior

purposes, such as discrimination in employment. Perhaps labor was right, perhaps not, but it took a long time to convince the majority that proper job placement, prevention and cure of revealed diseases, were the objectives as much for its benefit as for industry's. To counter this attitude there was a general concerted effort made to educate labor, as was previously done to convince management, that such was a good business proposition. Even now some are still unconvinced.

A similar situation has now arisen in connection with measures inaugurated to prevent the occurrence of occupational diseases among workers. It is true that these measures may at times somewhat impede the facility with which certain operations are performed; they may interfere with certain good or bad but lifelong habits formed by the workers; or they may seem superfluous to some; but in spite of the most excellent reasons for these measures, labor will, in many instances, fail to coöperate.

The industrial hygiene profession as a whole is sincerely dedicated to one proposition: to promote and maintain a good health standard among industrial workers. It has now a wonderful opportunity to do the same job with labor that it did with industry. As said before, industry originally opposed the efforts of industrial hygiene because it did not understand the objectives, and labor now opposes them for the same reason. The solution of this problem lies in education and for that there must be, first of all, a meeting of viewpoints and policies. The former has been delayed because of the latter and it is hoped that the present frank discussion will be instrumental in bringing about the beginning of a rapprochement between the industrial hygiene profession and labor. The time is late and much irreparable harm may be done by further unnecessary delays.

Members of the industrial hygiene profession are identified either with the official agencies or industrial establishments or universities. Industrial hygienists in industry are unfortunately very much in the minority and necessarily restricted in their scope. Industrial hygienists in universities, foundations, etc., are engaged almost exclusively in research work; they provide most of the fundamental information for practical application and they do not, as a rule, come in contact with either labor or industry. It is the industrial hygienist, identified with a city, county, state, or federal department, in close contact with industry and labor under many conditions, who is of the greatest interest at the moment.

It is my contention that the responsibility for educating labor in the activities and functions of industrial hygiene should devolve on the members of official agencies. They are in a strategically advantageous position to perform this educational job because of their professional knowledge, their impartial position as government representatives, their possession of industry's confidence, and their number. Through membership in their national conference, official industrial hygienists can, moreover, act in unison on administrative matters, irrespective of their geographical location. Because of these advantages, they are best suited to accomplish this task and should draft a general policy of labor education and provide the leadership for carrying it into effect.

Admitting the cogency of the foregoing proposition, I believe that the situation will call for a slight re-orientation of the official industrial hygienist's attitude on coöperation with labor. In some instances, his frame of mind may not be in the best of condition in that respect. It may be that this individual has, through the years, neglected to cultivate and maintain a position of absolute impartiality in re-

gard to all parties soliciting his assistance. As stated before, the official industrial hygienist's mission is to promote the health of the industrial worker, and any thought or deed short of absolute impartiality will not enable him to fulfil that mission and to that extent he will have failed. It is this very attitude of impartiality that won over the industrialist and it will be the very same attitude which will gain labor's confidence. The present situation will not be helped in the least by assuming a policy of the proverbial ostrich hiding its head in the sands and saying that there is no such problem and that everything is sweetness. To gain labor's confidence, it will be necessary to offer more than lip service; deeds will prove more effective. This is where leadership will count.

By the same token, however, labor will have to coöperate to the extent of divesting itself of occasional ill-founded suspicion toward the official industrial hygienists, a suspicion that seems to be based on a misconception of their procedures. For instance, labor has sometimes growled when all the data from a plant study it had requested were not submitted to it. In the first place, management now exhibits a far greater interest in its workers' environment than labor, and, in the second place, labor cannot fail to realize that management alone is responsible to government for the health and safety of the workers; this responsibility has been made patent in the health and safety clause of the Walsh-Healy Act. Labor has to be satisfied mainly with a brief statement of conditions found rather than a comprehensive report. The latter is the official industrial hygienist's basis to work and follow through on management to get the necessary improvements. There is no intention to sidetrack or brush off labor. It is merely the best way, at present, of getting accomplishments and, as long

as these are brought about, the means seem justifiable. This situation is somewhat similar to that where a small community engages a consulting engineer to design a bridge. The engineer will study certain existing conditions, design the bridge to meet these conditions, and submit an estimate of its cost. He will not, however, go into the mechanics and procedures involved in the construction of the bridge. These are not of particular interest to the community as all they want to know is that the bridge will be suitable to carry a certain traffic load, its architectural appearance, and cost.

Some labor leaders have taken a great interest in the subject of industrial hygiene and made various attempts to extend that interest to the entire labor movement. An interested outsider would gather the impression, however, that the labor movement was, as a whole, in a somewhat confused state of mind or else had not given this matter the thorough attention it merits. The importance of preventing occupational diseases in industry seems to be realized, and organized labor feels that it should have a definite part in this worthwhile program, but as yet has not developed a national program to include consultation, on a planned basis, with members of the industrial hygiene profession, either in connection with environmental sanitation or with medical programs.

It is my thought that the necessary leadership to bring about labor's cooperation should originate with the official agencies charged with the responsibility of furthering industrial hygiene. Otherwise, labor will some day accept leadership which may result in objectives unidentical, not to say conflicting, with those now conceived by the official agencies.

In order to start the ball rolling and provoke thought and discussion of this subject with a view to distilling a prac-

tical policy, I present a few suggestions, as follows:

That the official industrial hygienists—

1. Attempt closer and more frequent contact with labor in order to develop a better appreciation of its viewpoint.
2. Cultivate and maintain a more coöperative attitude in dealing with labor, on the time tested premise that good understanding begets good understanding.
3. Impress upon labor the absolute need for competent impartial services, and that these can only be rendered by the official agencies.
4. Initiate an educational campaign to acquaint labor with the scope and importance of occupational health hazards to which its members are exposed and thereby obtain better coöperation on remedial measures.

On the other hand, to obtain the desired results at a national level, labor has to—

1. Abandon its suspicious attitude and realize that sincere coöperation is readily and fully available for the mere asking.
2. Provide in its organization a division of competent industrial hygienists, through which it will create its own educational program, and use it as an intermediary to effectuate proper coöperation with the official agencies.
3. Make up its mind that it will do its part sincerely to insure success in its efforts for improving the environmental working conditions of its members.

As a further suggestion to labor at the local level it may be added that—

1. The formation of plant labor-management committees on health and safety may be of great importance, provided that their personnel is not the same as that handling economic grievances. Members of these committees should be made up of men and women selected on the basis of genuine interest in human welfare and may well comprise, if available, the plant physician, safety engineer, and nurse.
2. Such committees should be empowered to handle suggestions and complaints concerning both health and safety, discuss them and decide whether or not corrective measures are needed.
3. In the case of inability to reach agreement, the official fact finding agency should be called in to make a thorough study and present its data and recommendations to the committee.

4. Improvements or alterations of a major nature, deemed necessary by the committee, should be referred to top management for its acquiescence.

It is realized that only some 25 per cent of the workers are organized while the official industrial hygienist's job is to insure a safe and sanitary environment for all the workers. Yet this organized portion of labor makes it a good medium to deal with and any benefits accruing to it will, no doubt, accrue also to the unorganized portion.

These thoughts are presented to start some thinking among industrial hygienists. On further consideration, other suggestions will no doubt present themselves. A good and practical policy of coöperation and collaboration will not be brought about overnight, but by a full and frank interchange of ideas within the ranks of the industrial hygiene profession and with labor representatives.

All parties concerned must be made

to realize the importance of their contribution to the problem of controlling the occurrence of occupational diseases:

1. Management has the moral and legal responsibility of furnishing a safe and healthful environment for the workers.

2. Labor has the moral responsibility to convince its members that they should comply with the necessary dispositions to insure their well-being.

3. Official industrial hygienists have the legal responsibility of demanding that a safe and sanitary environment be provided for all industrial workers.

To make this presentation reasonably brief, enough material has been purposely omitted to form the subject matter of many others, a fact which, no doubt, will be fully understood.

The foregoing discussion merely represents the speaker's personal thoughts. It does not assume that industrial hygienists will regard it as the formulation of a policy, but rather as the forerunner of a series of discussions from which a policy will be derived.

Fort Greene Industrial Health

The first annual report of the Fort Greene Industrial Health Committee, "Brooklyn Accepts the Challenge" is the story of what is called "a unique experiment in adult health education." The Fort Greene Health Center district, including a population of more than 200,000 is the most industrial district in Brooklyn with more than 200 plants employing about 150,000 workers. The committee believes that it has proved both the possibility and desirability of management, labor, organized medicine, and public health agencies working together to improve the health of the industrial community.

Basic in the committee's success, about which it is properly proud, is obviously its ability to look unpleasant

facts squarely in the face. Included in its report is a graphic chart showing some of the social, economic, and health data for the district, divided into nine sub-districts. Its median monthly rental is lower than that of the city as a whole, its unemployment rate is higher, the infant mortality rate and the death rate from tuberculosis, cancer, pneumonia, heart diseases, and accidents are higher than those for the city. Is there not an old saying that recognizing one's faults is already half the battle of correcting them? The Fort Greene Industrial Health Committee apparently believes so. The report can be secured from the Fort Greene Industrial Health Committee, Fort Greene District Health Center, Brooklyn, N. Y.

The Statistical Approach to the Cancer Problem in Massachusetts*

EVELYN A. POTTER AND MILDRED R. TULLY

Biometricians, State Department of Public Health, Boston, Mass.

STATISTICAL studies inspired the Massachusetts Cancer Program, determined its scope, evaluated its activities, changed its policies, and elicited new ideas in cancer control.

The results of many of these studies have been reported in the literature, some have been utilized in official documents, while the findings of still others have never been published. The data used in these studies fall into five general classifications: the death record, the clinic record, the hospital record, the house-to-house survey, and the selected sample survey. The statistical procedures utilized have for the most part been simple and only the occasional study has demanded the more advanced statistical treatment.

The objective of this paper is a demonstration (through exemplification) of the integration of statistics in the Massachusetts Cancer Program. Most of the material selected is from studies that have not been incorporated into the literature, either because these studies are confirmation of previous ones or because their brevity does not warrant an independent report.

DEATH RECORDS

A type of data readily available and one from which much information can be procured is the death record. A

study of the accuracy of the cancer death certificates in Massachusetts in 1932 was made by Macdonald.¹ The results were obtained by comparing the death certificate data with the composite information received by interviews with the family and all physicians who attended the patient, together with a study of the case history from the hospital records. The analysis indicated that the identification of cancer deaths was sufficiently accurate to warrant statistical compilations of data on the disease as a whole.

A comparable study was conducted using a sample of the 1939 cancer deaths. The results indicated that there had been considerable improvement in cancer consciousness. This sample showed that the accuracy of the cancer death record had improved 2 per cent regarding the presence of cancer and nearly 7 per cent regarding primary location of the disease. In Table 1 the percentage agreement of

TABLE 1

Percentage Agreement of Verified Diagnoses with Death Certificates

| | Number of
Death
Certificates | | Percentage
Agreement | |
|------------------------------|------------------------------------|-------|-------------------------|------|
| | 1932 | 1939 | 1932 | 1939 |
| Buccal cavity | 79 | 74 | 83.5 | 85.1 |
| Digestive tract | 1,028 | 972 | 75.5 | 84.3 |
| Respiratory tract | 64 | 102 | 68.8 | 70.6 |
| Uterus | 213 | 140 | 80.8 | 82.9 |
| Breast | 225 | 210 | 98.7 | 98.1 |
| Other female genital organs | 43 | 40 | 76.7 | 85.0 |
| Male genitourinary organs | 169 | 155 | 83.4 | 88.4 |
| Skin | 28 | 25 | 57.2 | 76.0 |
| Other and unspecified organs | 180 | 239 | 66.7 | 70.7 |
| All locations | 2,029 | 1,957 | 78.2 | 83.5 |

* Presented before the Cancer Symposium, in association with the Seventy-third Annual Meeting of the American Public Health Association, New York, N. Y., October 2, 1944.

verified diagnoses with death certificate diagnoses, subdivided by location of cancer, showed an improvement in 1939 over 1932 which was significant by the chi-square test.

On the basis of these findings the recorded deaths from cancer are sufficiently accurate to warrant their use for statistical procedures, but equal reliance cannot be placed on studies based on the data of individual sites of cancer.

The death records may be used to confirm or disprove tentative hypotheses which have been advanced by other research workers. In 1940 Ciocco,² using Washington County, Maryland, data, reported an apparent tendency for both husbands and wives to die of cancer. He compared his observed finding of 29 such couples with an expected number of 19.9 and a control number of 19.0. The chi-square test on his data was 4.98 with a probability of 0.0257. Considerable interest was aroused in the medical profession following the publication of this paper and it was felt that if the findings represented general truths the public might postulate contagion.

In order to confirm or refute this study a comparable one was done using Massachusetts figures. Two types of data were used: one comprising material comparable to Ciocco's in the number of married couples but covering twice as long a period of time; the other comparable to his in length of time but having one-half as many married couples. Duplicating the method which Ciocco used in obtaining his expected values, the number of husbands and wives dying of cancer in both Massachusetts series showed no association between marital status and cancer.

It was thought that, due to the change in the cancer death rate over an extended period of time, a better expected value could be computed. This

was accomplished by applying to each surviving spouse of the husband or wife who died of cancer the probability of his or her death being due to cancer at the age and the time at which each died. The summation of these comprised the expected number of deaths from cancer among spouses. The expected values for both Massachusetts sets of data were used to compute chi-square tests. The results showed no significance. Ciocco obtained the number of control non-marital couples who had cancer and found a difference between these and the marital couples. In Massachusetts no significant difference was found. Ciocco states in his report: "In the case of widows and widowers who died of cancer, 13.3 per cent of their spouses had died from this cause and only 9.4 per cent of the spouses of all the widowed. The difference is probably significant from a statistical standpoint since it is over twice its standard error." Similar compilations from Massachusetts data did not show significant differences.

Inasmuch as the Massachusetts figures did not substantiate those of Maryland, it is believed that the Maryland figures represented the unusual occurrence and that the cancer incidence in husbands and wives is not related. Further investigation may be desirable.

The death certificate furnishes the best data for measuring the efficiency of the cancer control program. The decrease in the cancer death rate after adjustments have been made for changes in the population structure, and after allowances have been made for chance variations, furnishes a clear-cut picture of the cancer situation. Due to the life span of cancer patients, the effect of control measures is not reflected in the death rate immediately, but a lag must occur between improvement in the cancer situation and evidence of this from the death certificate. The death rate, adjusted for age and sex, has been

TABLE 2

Comparison of Maryland and Massachusetts Data in Respect to Deaths from Cancer Among Husbands and Wives

| | Maryland *
1898-1938 | Massachusetts | |
|---|-------------------------|---------------|-----------|
| | | 1841-1932 | 1893-1932 |
| Both husband and wife died of cancer | 29 | 18 | 12 |
| Expected number of husbands and wives to die of cancer. Method A † | 19.9 | 19.0 | 15.4 |
| Expected number of husbands and wives to die of cancer. Method B ‡ | ... | 17.8 | 13.5 |
| Number of control non-marital couples both of whom died of cancer | 19 | 18 | 11 |
| Chi-square test based on expected values computed by Method A † | 4.98 | 1.23 | 2.42 |
| Among widowed persons who died of cancer, percentage of spouses who also died of cancer | 13.2 | 7.8±1.8 | 8.3±2.3 |
| Among all widowed persons, percentage of spouses who died of cancer | 9.4±0.6 | 8.4±0.5 | 10.9±0.9 |
| Total married couples | 2,571 | 2,600 | 1,210 |
| Number of deaths from cancer among husbands | 187 | 194 | 115 |
| Number of deaths from cancer among wives | 274 | 255 | 162 |
| Number of deaths from cancer among widowed persons | 219 | 231 | 145 |
| Number of deaths from cancer among spouses of widowed persons | 242 | 218 | 132 |

* This part of table constructed from data in "On the Mortality of Husbands and Wives." *Human Biol.*, Dec., 1940.

† Method A for computing expected values. Apply the product of the probability of husbands dying of cancer and that of wives dying of cancer to the total married couples.

‡ Method B for computing expected values. Apply time-age-sex rate to surviving spouses of husbands or wives with cancer.

periodically examined to determine changes in the trends.³ During the early years of the Massachusetts program the female cancer rate adjusted for age was almost trendless. From 1932 to 1943 inclusive, it dropped from 127.0 to 117.5 per 100,000 population. The male rate adjusted for age continued as an upward trend until 1941 and since then has fallen slightly, possibly indicating the beginning of a downward trend. While the drop in the cancer death rate is not great it has been consistent. It is a tangible evidence of accomplishment and warrants an optimistic point of view.

CANCER CLINIC RECORDS

The records of the Massachusetts cancer clinics are an important source of data. The original record listed ten items of information to be obtained from the clinic patients. At the suggestion of Professor E. B. Wilson, Chairman of the Statistical Advisory Committee for the Cancer Program, the record was limited to a minimum number of items to avoid disturbing the patients unduly. This principle has been continued, with only a slight in-

crease in the original number. These items included identifying data, reason for coming to the clinic, duration of symptoms before first visit to a doctor and before first visit to a clinic. These were arranged in the form of a code so that underlining alone would be necessary in filling out the record. Other items to facilitate short studies have been incorporated into the card, used for a few years, and then discarded. On the original card four items dealing with diagnosis and recommendations for treatment were filled out by either the physician or the follow-up worker. In the present revision this has increased to eight items. Progress notes are incorporated with the original record until the report is closed. All cancer cases, with the exception of approximately 2 per cent lost, are followed until death. The clinic cards have been used for four general types of study: the evaluation of the program, etiological studies, material for educational purposes, and for the measurement of routine activities.

The various periods of delay between first suspicious symptom and treatment have been recorded on the clinic cards.⁴

In the first year of the Massachusetts Cancer Program the delay between the first symptom and consulting the first physician was 6.5 months. For the next 8 years this period of delay remained practically constant (trend coefficient = $-.06 \pm .05$). Since 1935 there has been a statistically significant downward trend with a new low of 3.3 months reached in 1943 (trend coefficient = $-.32 \pm .03$). Perhaps a more informative appraisal is the percentage of individuals visiting their physicians within 1 month of noticing suspicious symptoms. In the 4 year period 1930-1933, 12.7 per cent of individuals with cancer who attended the clinics consulted their physicians within 1 month of recognition of suspicious symptoms. In a corresponding period 10 years later the rate had increased to 22.4 per cent. The greatest improvement was noted in the cases of skin cancer. Improvement in rapidity of seeking diagnosis is an excellent method of evaluating a cancer program.

Since an earlier study from data collected by the Visiting Nurse Associations had suggested a possible relationship between tobacco and cancer, the chairman of one of the clinic committees requested that this be substantiated by data collected from clinic patients.⁵ Information on the use of tobacco was obtained from 2,927 male clinic patients over the age of 40. They were divided into those who used no tobacco, those who reported slight use,

moderate use, and excessive use. Attack rates were computed for cancer of the buccal cavity, digestive tract, respiratory tract, skin, and for cancer of all other sites. There was a definite association between cancer of the buccal cavity and the use of tobacco. There also appeared to be some association between the use of tobacco and cancer of the respiratory tract. These findings confirm the opinion held by many clinicians.

An important part of the Massachusetts Cancer Program consists of furnishing information to the public regarding prevention and the importance of early recognition and treatment. One of the difficulties encountered is the skepticism on the part of many regarding the curability of the disease. When actual figures demonstrating cures can be produced, a large part of the skepticism disappears. The clinic cards have furnished such information.⁴ Individuals with skin cancer treated within the first month showed 80 per cent living at the end of 10 years while those who delayed more than 1 month had a survival rate of only about half this figure (43.9 per cent). Similarly, cancer of sites other than skin showed a 10 year survival rate of about 38 per cent among those treated within 1 month contrasted with 20 per cent among those who were not.

The data from the clinic cards have been used as a guide to administrative procedure, such as the measurement of

TABLE 3
Tobacco and Cancer—3 Year Period
Rate per 100, by Site

| Extent of Use of Tobacco | Males Over Age of 40 in Massachusetts Cancer Clinics | Cancer of the Buccal Cavity | Cancer of the Digestive Tract | Cancer of the Respiratory Tract | Cancer of the Skin | Cancer of All Other Sites |
|--------------------------|--|-----------------------------|-------------------------------|---------------------------------|--------------------|---------------------------|
| None | 655 | 3.7 | 5.6 | 0.5 | 11.3 | 5.5 |
| Slight | 357 | 5.1 | 9.5 | 1.1 | 7.9 | 7.8 |
| Moderate | 1,155 | 11.5 | 8.3 | 2.0 | 12.5 | 5.2 |
| Excessive | 760 | 17.9 | 5.5 | 1.7 | 13.0 | 4.6 |

the effectiveness of the follow-up service in the clinics.⁴ Perhaps one of the most informative figures of this type is that which showed that in 1943 81.1 per cent of recommendations made by clinic physicians had been put into execution within 1 month. Another interesting compilation is the survival rate of cancer patients which has been computed from these cards for the past 17 years.

HOSPITAL DATA

Reporting of cancer is not attempted in Massachusetts but the periodic collection of hospital data furnishes a somewhat similar type of information. Hospital morbidity is not total morbidity, but recent studies indicate it is approaching that optimum. In 1932 approximately 70 per cent of cancer cases were hospitalized. This has increased to about 85 per cent at the present time.⁴

HOUSE-TO-HOUSE SURVEYS

Data collected by means of house-to-house surveys have been voluminous. The book *Cancer and Other Chronic Diseases in Massachusetts*⁶ was based on such surveys. The most recent use of this method has been several public opinion polls to determine the knowledge of the people regarding cancer, and their sources of obtaining this knowledge.⁷ Partial correlations have been computed to determine the real value of the various educational media. About one-quarter of the individuals surveyed displayed some knowledge of cancer by answering correctly three pertinent questions relative to the disease. The principal source of their information was reading material.

SELECTED SAMPLE SURVEY

Another form of survey is that utilizing the selective sample rather than the random one. An example is the true-false test conducted in the

Lynn High Schools as a measurement of the value of the experimental program of cancer education.⁸ Four groups of students received different types of instruction in the hope of ultimately determining the best approach to this problem. The methods employed were the general assembly, detailed instruction in the biology class and in the public health class, and bulletin board exhibits. A fifth group of students did not receive instruction. As a measurement of this experiment, true-false tests were given. In order to minimize the possibility of a student obtaining a high mark by guesswork, twelve thoughts were presented in this questionnaire, each expressed four times in a different manner, and a score was given only when all four parts of the same thought were answered correctly.

The results of this test indicated a definite upward trend in cancer knowledge as the students progressed from the lower to the higher grades, and suggested that the most satisfactory approach is detailed instruction in the biology class. The experiment is to be repeated and should substantiate or disprove this opinion.

SUMMARY

This paper is a report of some of the statistical work that is being done as a part of the Massachusetts Cancer Program. The results from several studies furnish examples of the application of various types of data.

SOURCE OF DATA AND RESULTS

Death Records

The death records can be freely used in studies of cancer as a whole but are not sufficiently accurate to warrant too much credence in cancer of individual locations. Massachusetts figures do not indicate any association between cancer and marital status.

One measurement of the efficacy of the Massachusetts Cancer Program has been the drop in the adjusted death rate.

Clinic Records

The decrease in delay between first symptoms recognized by the patient and first visit to a physician is tangible evidence that the public has become more cancer conscious.

The use of tobacco is strongly associated with cancer of the mouth and to a lesser degree with cancer of the respiratory tract.

The clinic follow-up service of cancer patients has shown that among those who sought treatment within the first month, twice as many were cured as among those who did not seek treatment within that period.

The fact that over 80 per cent of the recommendations for clinic patients have been carried out within 1 month is a criterion of the excellence of the follow-up service.

Hospital Data

There has been a steady increase in hospitalization of cancer patients in Massachusetts.

House-to-House Surveys

The knowledge of the public regarding cancer and the sources of obtaining this knowledge has been ascertained by house-to-house surveys. About one-quarter of the individuals surveyed displayed some knowledge of cancer by answering correctly three pertinent questions relative to the disease. The principal source of their information was reading material.

Selected Sample Surveys

The true-false test incorporating a multiple presentation of similar thoughts to limit good scores by guesswork has demonstrated improvement in cancer knowledge of high school students following an experimental course of instruction on the disease.

CONCLUSION

A complete list of the problems in cancer which have been studied statistically in Massachusetts would be far outside the limits of this report. These few examples have been chosen to

show different types of studies and some of the different approaches. The findings in some of the studies influenced the program as a whole, while those of others only a part. The decrease in the death rate and the duration of delay before seeking diagnosis were measures of the whole program and aided administrative evaluation, while the value of the cancer poll was limited to the educational groups.

The statistical approach is fundamental in attacking the cancer problem from the public health standpoint. A program based on this approach provides a graphic picture of the extent of the problem and of past accomplishments, and it suggests new measures of control. Appraisals of activities elicit information as to the relative merits of each endeavor, and are a necessary adjunct to any control program.

Comprehensive data aid not only in the solution of the immediate, local problem, but they may be of use to those who are delving into the many ramifications of the larger problem.

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Study and Control of Industrial Atmospheric Pollution Nuisances^{*}

FRANK M. STEAD, F.A.P.H.A.

Senior Engineer, Bureau of Industrial Health, California State Department of Public Health, Berkeley, Calif.

THE field of nuisance control is extremely broad and this paper will be confined to a discussion of nuisances resulting from atmospheric pollution of industrial origin. Nuisances of this type are caused by atmospheric contaminants of three types: inert smokes and dusts, mucous membrane irritants, and malodorous substances.

Smokes probably constitute the most widespread of the atmospheric contaminants. Studies made in this country and elsewhere indicate that the atmosphere of every city is polluted with minute solid particles resulting from the combustion of fuel, and in the various forms of soot, fly-ash, and unburned or partially burned solid fuel. A study¹ of fourteen American cities made in 1936 by the U. S. Public Health Service showed that this type of particle approximated $\frac{1}{2}$ micron in size and was present to the extent of about $\frac{1}{2}$ mg. per cu. m. of city air. The results of this type of atmospheric pollution are evident in terms of long-time blackening of buildings and damage to drapery and dry goods rather than in discomfort on the part of the persons breathing the polluted air. This fact and the widespread occurrence

of smoke pollution have produced a considerable degree of tolerance by urban populations. It is uncommon therefore to receive specific complaints of smoke pollution unless an unusually severe amount of smoke is being released.

Release of dusts from industrial plants much more commonly results in trouble. Such dusts range in particle size from about $1\ \mu$ to as high as $100\ \mu$ and cause definite subjective symptoms of discomfort when breathed. Rock crushers, cement plants, smelters, roofing plants, sand blasting plants, and a variety of industrial processes which involve the release of organic dust are common offenders. Usually such dusts are a nuisance, pure and simple, but sometimes there is added the fear of damage due to the toxic character of the dust. Examples of this are the silicosis hazard from sandblasting or the lead poisoning risk from backyard plants where storage battery plates are reclaimed.

Mucous membrane irritants form a widespread and important group of atmospheric contaminants. High on the list is sulfur dioxide which is released in quantities of many tons per day from single oil refineries and smelters. Other acid gases such as chlorine and phosgene are frequently released from industrial plants, usually

^{*} Presented before a Joint Session of the Engineering and Industrial Hygiene Sections of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

as a result of an accident or some disturbance in plant process. These gases are chiefly respiratory irritants. Other gaseous products, usually organic vapors, are tear gases irritating to the eye. In this class are the aldehydes. Especially to be mentioned is acrolein, which is associated with the manufacture of soap, the cooking of varnish, and with many processes involving the thermal breakdown of oils. During the war the building of synthetic rubber plants with the consequent release of such vapors as those of butadiene have greatly aggravated the eye irritation problems in some areas. Sometimes in the manufacture of certain chemicals there will be the inadvertent formation and release of vesicant gases such as mustard.

Particularly troublesome among the mucous membrane irritants are the acid mists. Most prevalent of these is sulfur trioxide released in the production of sulfuric acid. Before the war most of the sulfuric acid plants were able to control their loss of sulfur trioxide reasonably well, but after Pearl Harbor the demand for high octane gasoline produced by the alkylation process using 100 per cent sulfuric acid as a catalyst soon changed the picture. One hundred per cent sulfuric acid is made by mixing 98 per cent acid with oleum, and many plants formerly making 98 per cent acid went into the production of oleum without a suitable type of equipment for control, and in addition began to overload their plants. The result has been the release of sulfur trioxide in amounts causing respiratory irritation not only to an uncomfortable degree but in some cases to an extent actually dangerous to life.

Less prevalent but very serious when they do occur are pollutings of the atmosphere with anhydrous hydrogen chloride. These most frequently are caused by accidents in plants producing the gas.

The occurrence of atmospheric pollution with mucous membrane irritants not only causes discomfort to the persons exposed but frequently arouses in them an instinctive dread that is intensified by statements they have read relative to the use of poison gases in warfare. Consequently when they make their complaints they are extremely insistent and many times unreasonable in their demands.

The trials and tribulations of a nuisance investigation officer are frequently severe when he is working on smokes, dusts, and irritant gases, but these are as naught compared to his troubles when he tackles the job of studying odor nuisances. Here he finds himself confronted with a thing that no two people can describe accurately, that cannot at the present time be measured by any objective means, and for which the only subjective measuring instrument, namely the human nose, not only varies widely in sensitivity among different persons but becomes so quickly fatigued as to be utterly unreliable. Trouble makers in the industrial odor field include oil refineries, soap factories, rendering plants, tanneries, sewage treatment plants, and a host of others.

Successful handling of atmospheric nuisance complaints requires two basic lines of action, and failure in one of them is apt to nullify any amount of good work in the other. The first line has to do with public relations and the second with the technical study of the problem. Many persons have become disgusted with the field of nuisance abatement because the complaining parties charged them with being partial to the industrial plant causing the nuisance or because the plant itself refused to take the problem seriously. Situations of this sort can only be avoided when the investigator realizes that a suitable groundwork must be laid before a successful study can be started.

The first step in laying this groundwork consists of a careful canvass of the area from which the complaints have been received to determine the nature, extent, seriousness and frequency of the air pollution. In making this canvass it is essential to interview a representative group of people in such manner as to get the true facts of the situation.

At the time when complainants are first interviewed it is important to explain to them clearly the powers and limits of the investigating agency and to outline the nature of the study to be made. Failure to do this may either unduly raise their hopes that a complete abatement will be made at once or lead them to feel that they are not getting the service to which they are entitled. In either case their confidence in the integrity and ability of the investigating agency will suffer.

Studying a nuisance is in many respects like studying an outbreak of communicable disease, and the six cardinal principles of field investigation laid down in 1936 by Lumsden³ are worth repeating here:

1. First and foremost and above all else, *work*, and that means hard work and plenty of work.

2. Patient, painstaking, careful and thorough collection of all available facts which may have any bearing on the situation, and due consideration of every possible factor until the inoperative ones can be eliminated beyond reasonable doubt.

3. Broad-mindedness and open-mindedness in obtaining and in studying data, and, in conducting interviews to obtain data; avoidance of any tendency to lead witnesses.

4. Maintenance of a reasonably clear perspective, and refrainment from superficial surmises, from hasty half-baked conclusions and from fixed opinions or efforts to prove something which may not be so, or to marshal facts so that they may tend to support unduly a "hunch" or a preconceived hypothesis or theory before all the salient returns are in.

5. Assemblage of the data so that they will make a clear-cut, readable picture with first things first and with the foremost facts sufficiently but not unduly emphasized.

6. Common sense and honesty in the interpretation of the findings so that the facts will compel a reasonable conclusion and not be twisted, distorted, or obfuscated so as to be made to appear to support a conclusion perhaps desired but false.

Having determined by a canvass of the affected area that the nuisance complained of is real and sufficiently serious to warrant a thorough-going study, the investigator is ready to begin the actual technical study of the problem itself. The study will of course vary with the type of problem but will usually include the following seven features:

1. Discovering the identity of the causative agent.

2. Location of all points of dispersal.

3. Selection of suitable sampling methods.

4. Planning and carrying out the sampling program.

5. Study of the physical factors affecting dilution.

6. Interpretation of results.

7. Securing of the needed corrective measures.

Those who have had experience in the abatement of atmospheric pollution nuisances will appreciate that it is much simpler to *list* the steps to be taken than it is to carry them out. The first step listed was to identify the causative agent. Sensory reactions give the first clue. It usually is possible to tell by eye whether the atmospheric contaminant is in the form of dust, mist, or gas, and the sense of smell is highly useful as a means of recognizing odorous substances. Irritations of the respiratory system or eyes serve to point out the presence of the irritant gases and mists and give a clue as to their identity. Other clues may frequently be found from a careful observation of the environment. Hydrogen sulfide will always leave its mark in the form of blackening of lead base paints and sulfur dioxide will show itself in the form of damage to certain types of vegetation. One of the best aids is a

thorough knowledge of the aerial waste products discharged from the industrial plants in the vicinity and an acquaintance with the history of the area in question. Industrial nuisances have an annoying habit of recurring over and over again from the same plant.

The second step in the study is location of the release points of the material causing the trouble. Sometimes this can be done by eye when a visible stream of smoke, mist, dust, or other material can be seen to travel directly from some stack or opening to the area of complaint. Usually, however, the investigator is not so fortunate. Then he must proceed in a careful manner indeed since if he prematurely points the finger of accusation at the wrong plant as the source of the trouble or fails to recognize all the sources when there are more than one his whole study is bound to end in failure. A careful observation of wind direction at the time of occurrence of trouble usually serves to locate the source to the nearest 45° of direction, that is, to locate it in the right quadrant with respect to the area of complaint. All the industrial plants in this quadrant within a reasonable distance should be visited and the problem should be presented to them in a straightforward manner. A list should be made of all likely release points. Qualitative tests then should be made of material discharged from these points to see whether it is the same as that encountered in the area of complaint.

When the cause of trouble is an unusual substance not ordinarily found in the atmosphere this method is conclusive. When the substance is a common one, such as smoke or fly-ash, something further in the way of proof is needed. Several means have been used in this respect successfully, two of which will be mentioned. Both of them make use of some index or marking property either normally present or

added to the released material which can be recognized in great dilution. It has been found possible to add to a smoke stream in a stack certain salts which have been made radioactive and which retain radioactivity for about two days. Since radioactivity can be detected in extremely minute quantities recovery of this radioactive smoke or dust has served as a means of proving the point of origin of the nuisance in about the same way as the adding of fluorescein to a cesspool and subsequent detection of it in a well serves as a means of proving the source of sewage pollution of the well. Sinatt⁴ in England has reported on the formation and occurrence of cenospheres, which are hollow spheres formed when various solid fuels are burned at temperatures above 600° C. in an insufficiency of air. These spheres, which range usually from $\frac{1}{4}$ to $\frac{3}{4}$ mm. in size, do not have smooth unbroken surfaces, but rather, the outer surface is composed of a latticework the pattern of which varies with different parent substances. If these cenospheres are found in the deposit of solid air-borne material at the site of the complaint there is excellent chance of finding with certainty their source. Other index methods of this type will suggest themselves.

We come now to what is perhaps the most critical part of the whole study, the selection of suitable sampling methods. At this point the investigator is frequently sailing on uncharted waters. At the release points the concentration of the atmospheric contaminant may be extremely high, but in the areas of complaint the concentrations usually are so low that ordinary chemical methods are not nearly sensitive enough to measure them. Most chemical methods permit measurement of gases and vapors down to about 1 p.p.m. by volume. Consider then the problem of studying the occurrence of ethyl mercaptan which can be detected by the human nose at

a concentration of a fraction of one part per billion. Another aspect of the problem is adverse sampling environments. In the field, sampling may have to be done in the wee small hours of early morning out in the middle of some field, or the sampling may have to be done in motion to follow the vagaries of path of some gas or smoke stream. In some cases a continuous twenty-four hour record must be secured and the sampling maintained for several weeks at a time. The problem is seen then to be no mean one. Let us consider first the sampling of dusts and smokes. In this field we have several reliable instruments to choose from. Electrostatic precipitators have the advantage of high collecting efficiency for particles ranging widely in size, concentration, and composition, and collected samples may be examined for total weight and specific ingredients, and with certain modifications of the equipment, also for particle size. Various types of impinging apparatus permit estimation of number of particles per cu. ft. Filter paper types of sampling equipment are available to collect samples which can be quantitated on the basis of depth of stain. The weaknesses of this type of sample are obvious, but automatic recording instruments are commercially available and this feature is very valuable. The study¹ made by the U. S. Public Health Service of the "Atmospheric Pollution of American Cities" illustrates the application of these types of equipment.

In the sampling of mucous membrane irritants we are usually dealing with materials commonly encountered and measured in industrial workroom atmospheres, and the measurement of these substances at the sources where concentrations are high usually presents no serious problems. In the areas of complaint, however, the matter requires something special in the way of sampling equipment from the standpoint of great

sensitivity and self-recording nature. When the irritant is sulfur dioxide or sulfur trioxide the Thomas autometer,⁵ which has been developed and widely used by the American Smelting and Refining Company, exactly fills these requirements. This instrument, which is sensitive to concentrations of sulfur dioxide and trioxide as low as two parts per billion, collects its own samples on a prearranged schedule, oxidizes the sulfur dioxide to trioxide and measures the resulting sulfuric acid by the change in conductivity of the absorbing solution. Recently this instrument has been adapted not only to measure and record the two gases above mentioned, but also to measure separately and record the total concentration of many other gases which may be present. Among these are hydrogen sulfide, carbon disulfide, ethyl mercaptan, and thiophene.

At the present time there is no satisfactory objective method of measuring odors as such. Two by no means conclusive but still highly suggestive pieces of research on this problem have been reported. In 1919, Zwaardemaker⁸ of Utrecht demonstrated that when water containing an odorous substance is sprayed under pressure through a fine orifice, an electrostatic charge positive in sign is created on the jet, but that this is not the case for nonodorous substances. He developed equipment for measuring this charge and stated that the same magnitude of charge represented threshold of odor regardless of the nature of the odorous substance. The writer has experimented with similar equipment, and while he has observed the phenomenon reported, he has not been able to confirm all of these claims. The subject deserves more study, however, since a reliable method of measuring odors is needed at the present time. In 1938, Dyson¹⁰ in England reported on the possibilities of the use of the Raman shift as a quali-

tative means of measuring odors. Raman had observed that, when a monochromatic source of radiation is caused to pass through certain substances, the transmitted radiation has a frequency different from that of the source. Dyson's experiments convinced him that all odorous compounds will give such a shift and that nonodorous compounds giving a shift are nonodorous by reason of lack of vapor pressure or lack of solubility in lipoid matter so that they do not reach the olfactory nerves. He tested the amplitude of the Raman shift of many odorous compounds and found that compounds having similar amplitudes had similar odors even though their chemical compositions were not even remotely alike. While neither of these two methods may prove sound or practical, they are at least thought provoking and may lead the way to the discovery of a truly scientific method of measuring odors that will match our present methods in the fields of light and sound.

Until such a method has been developed the human nose remains the most satisfactory odor-measuring instrument in spite of its many shortcomings. Subjective observations can, however, be reinforced by certain general chemical tests among which are the following:

1. Measurement of the chlorine demand of the odorous substance. This method is based on the observation that most organic odorous vapors are oxidizable and will readily combine with chlorine to form nonodorous end products.

2. Oxidizing in a heated quartz tube in the presence of platinum as a catalyst and measuring the resulting strong acid. This method, which is used in the improved Thomas autometer, is based on the fact that organic sulfur compounds comprise a large fraction of the trouble producers.

The fourth step of the study mentioned was planning and carrying out of the sampling program. This step will of course be governed by the nature of

the problem, but sampling points will usually be chosen both at the points of release of the air polluting substance and at strategic points in the affected area. The sampling program at a plant must be such as to cycle all pertinent operations. Such sampling should be done in the presence of and if possible with the help of plant personnel. In many cases, if the right sort of relations have been established, this entire assignment can be safely left in the hands of the plant with only occasional checking by the official agency. Occasionally, but not often, the needed information has already been secured by the plant. Sampling in the field must be done at the times of occurrence of nuisance and since these times are impossible to predict accurately the investigator has two choices. The first is to give the key complainants his phone number and go to bed at night with the assurance that he will always be called at the time when he least wants to be. The other is to use automatic recording equipment. The advantages of the latter method aside from the piece of mind of the investigator are obvious. The most important requirements of a field sampling program, aside from the soundness of the methods used, are that it be thorough and not require that conclusions be based on one or two samples. It should be recognized that a proper study of a nuisance takes time and no study should be entered into unless a thorough job can be anticipated.

In spite of the most painstaking and patient efforts to collect convincing samples in the field this type of evidence is often unsatisfactory or at best incomplete and must be reinforced by an estimation of the probable concentrations of polluting substance that will reach a given area from a given release point under most critical conditions. This estimate is based upon the concentrations of polluting substance released

and the amount of dilution that takes place. An appraisal of the physical factors of the area will permit an estimate of the magnitude of such dilution to be made.

Most local nuisances occur when the affected area is directly in the wake of a point from which a polluting substance is being released and the stream of polluted air is traveling directly to the affected area. If the affected area is at the same height as the release point, all that is needed, of course, is a wind in the right direction, but if the release point is high above the ground, as is frequently the case with tall stacks, then *downwash* of the discharged air must take place before a nuisance will occur. Sherlock and Stalker¹² have reported on the factors responsible for downwash from stacks and, on the basis of their criteria, it is usually possible to forecast the likelihood of this phenomenon in a given setup. The forecasting of probable dilution factor is a more complicated problem but certain aids are available. The first step is to ascertain the type of flow at the release point, that is, whether it is streamline or turbulent. Streamline flow is to be avoided since polluted air discharged in this manner may travel for considerable distances practically undiluted. Streamline flow seldom occurs at stacks but may occur when polluted air is escaping from the top of a reaction tank or through a door or window.

If the air is discharged in a turbulent stream or jet, such jet rapidly increases in volume with consequent dilution of polluting material as a result of air entrained. This characteristic of jets is well understood and has been formulated by several investigators. Experiments and studies reported by the U. S. Bureau of Mines¹¹ indicate that an upward discharged turbulent jet from the top of a stack may be bent over to a horizontal axis by wind without destroying its jet properties, and that

factors of dilution at given instances of travel can be computed with rough accuracy for given horizontal distances if the stack velocity and wind velocity are known. From this it will be seen that with a sufficient amount of information as to the type and velocity of flow of the polluted air stream, height of release point and surrounding buildings, direction and velocity of prevailing winds, and topography of area, it is possible to forecast to some extent the probability of the polluted air stream reaching a given area and the degree of dilution that would have taken place under the most critical conditions (that is, to forecast the maximum concentration that could be encountered at the area).

Where a large number of sources are simultaneously in action the single jet type of estimate cannot be used since there is more likelihood of general pollution of all the atmosphere in an area. In such cases the occurrence of low ceilings with resultant holding down of polluted air is of more concern. Such low ceilings may result from low lying fogs or from temperature inversions, and in forecasting such occurrences a record of meteorological data is essential.

When all of the results are in, both from the sampling program and from the study of physical factors just discussed, an interpretation must be made which will result in the reaching of certain definite conclusions. These conclusions must cover the following points:

1. Can the nuisance be definitely attributed to polluted air discharged from certain known points?
2. In case of an affirmative answer to the above question, what type and degree of change in discharge of polluted air will alleviate the situation?
3. What changes in plant process are needed to bring this about?

Having arrived at an answer to the three questions listed above, the last

and most important step of all remains, that is, to get the needed corrections made. There are three possible means of accomplishing this. The first and most natural of the three is to persuade the plant to make the changes voluntarily. This can very frequently be accomplished since most industrial plants value the good will of the people living near them. Failure to secure such voluntary corrections most often results from a failure of the investigator to present the problem in such manner as to command the respect of the plant personnel.

The second alternative is of course court action. While unpleasant, sometimes this type of action cannot be avoided, and health departments should not hesitate to employ it when the issue is clear and other attempts have failed. If a health hazard is involved the action will probably be initiated by the health department. If no health hazard is involved but the nuisance is merely an offense to the senses, action will probably be brought under the state penal code by the district attorney or other similar prosecuting agency. If the case does come to court the investigator will have an excellent opportunity to find out how good a job he has done in studying the problem.

The third alternative does not give immediate relief, but it is the writer's opinion that it is the one that in the long run will prove the real solution to the industrial nuisance problem. This is long-time planning. Such planning includes not only carefully worked out industrial zoning, so that industries commonly causing nuisance will not be

located in the heart of residential districts, but also the establishment of standards of performance with respect to the release into the atmosphere of polluting substances. This will require legislation of an enlightened type. It will also require more technical knowledge than we now possess, but enough knowledge is already available for a start and a start must soon be made. The reconversion of wartime industry to peacetime processes gives us an unprecedented opportunity to take great strides in this field. It remains to be seen if we have the vision and courage to seize this opportunity and make the most of it.

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Proposed Report on the Educational Qualifications of Executives of Voluntary Health Associations*

I. DEFINITION

Voluntary health associations are nonofficial groups interested in the public health situation as a whole or in one or more specific health problems.

The term "executive secretary" refers to the chief executive officer of a voluntary health association.

II. GENERAL SCOPE OF THE FIELD

In 1945 voluntary health associations in the United States totaled in excess of 20,500. Of these, 1,271 were visiting nurse associations, 9,542 were Red Cross chapters and branches, 1,694 were crippled children's societies, 1,450 were field army units of the Cancer Society, and 2,609 were infantile paralysis committees. Most of the remaining 4,000 associations were of specialized character, 3,031 being in the field of tuberculosis. Of this number 650 tuberculosis societies were said to employ executive secretaries, with perhaps 400 of them devoting full time to their health educational, promotional, fund-raising and other duties, with 250 devoting part time to these tasks. About 65 groups engaged solely in work related to social hygiene, and of these

about 20 employed full-time executive secretaries. More than 100 groups combined interest in tuberculosis and social hygiene. There were about 50 state or regional cancer groups beside the field army units mentioned above, of which about 35 employed full- or part-time executive secretaries. In addition there were 67 mental hygiene committees or societies, 28 for the prevention of blindness, at least 56 for child health, 158 for the conservation of hearing, 27 for heart disease, 147 for planned parenthood, 6 diabetes associations, 49 health councils, and 316 councils of social agencies. The last two groups represent agencies interested in community health programs, in health education, in appraisals of health work, and in social research as applied to health. Their chief functions are coördination and promotion, not as service or operating agencies. Some are known as health councils, some as health federations, some as health divisions of city or county councils of social agencies.†

A notable trend in voluntary health associations has been to broaden their programs rather than to concentrate on only one specialized health problem. For example, some of the tuberculosis associations include such activities as the promotion and improvement of school health services, general health

*. The Committee on Professional Education of the American Public Health Association publishes this report before transmittal to the Governing Council in order to permit the members and Fellows of the Association to review it and to offer criticisms and suggestions in the further consideration of the report.

This report, like all other statements of the committee on professional and technical qualifications in public health, is subject to periodic revision in order that it may be kept abreast of the best thought.

† See *A.J.P.H.*, 34, 7:757-759 (July), 1944.

education, and community education in nutrition. Tuberculosis associations in a number of states have added programs in the control of the venereal diseases, heart disease, diphtheria prevention, dental hygiene, and mental hygiene.

The Committee for the Study of Voluntary Health Agencies, of the National Health Council, is completing the report of a nation-wide survey which will give additional information on the organization and activities of voluntary health associations and which should be consulted for further information.

There will unquestionably continue to be a need and place for voluntary health associations and a trend in the direction of generalized health organization as distinguished from specialized organization. It seems likely that considerations of efficiency, economy and harmony will favor a trend locally and perhaps also on a state-wide basis toward a single generalized unofficial health association instead of a multiplicity of specialized, separate, independent, unrelated and more or less competitive voluntary associations of varying degrees of stability, responsibility and permanency.

III. THE FUNCTIONS OF VOLUNTARY HEALTH ASSOCIATIONS AND THE DUTIES OF THEIR EXECUTIVES

A. *Functions of Voluntary Health Associations*

Among the *functions* of these associations are the following:

1. To survey the health situation of a particular area to determine health needs and to aid the constituted public health authorities in dealing with problems requiring constructive action.
2. To promote sound community programs and strive to eliminate duplication and friction.
3. To interpret the work of the health authorities to the public, thereby increasing recognition and support.

4. To encourage, stimulate, and assist public health authorities to improve their standards and objectives.

5. To carry on a continuous program of health education for the general public, to the end that the people may know the available facilities for diagnosis, care, and treatment, and how to make appropriate use of them.
6. To arouse and mobilize public sentiment for the establishment and support of necessary public agencies and facilities.
7. To create an informed public opinion that will demand efficient results from governmental administration and rally to its support if unjustly attacked.
8. To take appropriate action with regard to health legislation.
9. To undertake for a temporary trial period newer activities in public health work until their practicability is demonstrated and public sentiment justifies their assumption by appropriate public authorities.
10. To undertake studies of educational and administrative methods.

These functions should be exercised in coöperation with the professions of medicine, dentistry, nursing, and other professional groups.

B. *Duties of Executive Secretaries*

Beside the duties implied in the functions of a voluntary health association, the executive secretary, jointly with the official authorities, should study the health situation in the area in order to appraise what is being done by the constituted health authorities and other agencies, and to help his agency formulate its program to meet the apparent needs. He is then expected—

1. To direct the program of activities adopted by his organization.
2. To keep the members of his governing board fully aware of their responsibility for the effective functioning of the organization.
3. To stimulate, advise, and assist the board in the raising of funds for financing the activities of the organization.
4. To engage a staff of qualified assistants within the limitations of available funds, plan and direct the work of the staff, organize and supervise the business administration of the organization.
5. To recruit, train and utilize wisely the services of volunteer unpaid workers.

6. To establish and maintain coöperative relationships with the tax supported health authorities and with the other voluntary associations concerned with public health problems.
7. To organize and conduct, in consultation with the official agencies a program of public information and education in that particular public health problem with which his organization is concerned, utilizing available channels for publicity such as newspapers, magazines, motion pictures, radio exhibits, lectures, bulletins, meetings, institutes, and conferences.

In the case of health councils, public health federations, or health sections of councils of social agencies, the executive secretaries usually devote more time to studies and appraisals of the needs of the community and to the promotion of effective coördinated action on the part of the various authorities in meeting these needs through constructive group action, than they devote to activities in specialized fields of public health. Such groups do not usually render direct service to individuals.

IV. BROAD EDUCATIONAL BACKGROUND (UNDERGRADUATE)

A collegiate or a university education with a baccalaureate degree should underlie the preparation of all persons for these positions. Among college graduates preference on the whole should be given to those who have majored in such social sciences as sociology or political economy, or in such natural sciences as biology or bacteriology. Systematic training in English composition and public speaking is desirable, for the ability to write well and to speak effectively is essential.

V. GRADUATE EDUCATION

Knowledges and skills needed to carry out the aforementioned duties are:

A. *Knowledges*

1. A working knowledge of the scientific aspects of the communicable diseases, especially tuberculosis and the venereal diseases: their

nature, epidemiology, prevalence, mortality, transmission, control, and prevention.

2. Knowledge of leading problems in public health, such as infant and maternal mortality, dental health, mental hygiene, pneumonia, cardiac diseases, medical supervision of school children, prevention of accidents, the major industrial diseases, nutrition, and the environmental factors that affect the public health.
3. Information about the community health program, especially the organization and work of the official health agencies, and their accepted functions; information about the facilities and institutions engaged in the control of tuberculosis and the venereal diseases, in programs for infant and maternal health, in the medical supervision and health instruction of school children, the facilities and methods for dealing with environmental sanitation, and the provisions for medical care.
4. A knowledge of the fundamentals of public health legislation and of the mechanics of legislative process as commonly practised in the passage of laws and in the budgeting of appropriations.
5. A knowledge of the principles of public health education and of the media and channels available therefor (see A.P.H.A. report on the Educational Qualifications of Health Educators *).
6. A knowledge of methods for systematic record keeping and other office procedures.

B. *Abilities and Skills*

1. Ability to organize and conduct a continuous campaign of public education, utilizing all available channels for communicating information to the public.
2. Ability to arouse and mobilize public opinion in behalf of some particular objective, such as the employment of a full-time trained health officer, or the organization and extension of clinics or the establishment of public health nursing services.
3. Skill in public speaking and ability to adapt the manner of presentation and the choice of language to the intelligence and social outlook of varied types of audiences.
4. Skill in the techniques of organizing and conducting meetings of his own organization, its board and subcommittees, and of public meetings.
5. Ability to write reports and to prepare programs of work and budgets.
6. Skill in the techniques of surveys and appraisals.
7. Skill in the techniques of fund raising.

* *A.J.P.H.*, 33, 8:998 (Aug.), 1943. Reprints available.

C. Experience

Learning how the work of a voluntary health association is organized and carried on by means of a period of apprenticeship or internship on the staff of such an organization under competent supervision is considered a requisite qualification for this position. Such in-service experience in some instances may be acquired while the trainee is in residence at a school of public health or a school of social work.

The degree of Doctor of Medicine is not an essential qualification for candidates in this field but may be advantageous in certain types of organizations. It is, however, vital that the executive secretary be educated in sanitary science and other courses which include the information specified above.

VI. PERSONAL QUALITIES

An individual fit to carry the responsibilities of an executive secretary should be of good moral character. He should have an attractive personality and good health. He should be alert, open-minded, willing to learn, a clear thinker, and have mature, sound judgment, seasoned by actual experience. He should have qualities of leadership, should possess initiative, should be able to assume responsibility, and to command the respect of his confreres. He should be able to make plans ahead in detail and be skillful in accomplishing results with little friction. As an administrator he should be able to delegate responsibility, to master details, and to budget both time and money.

VII. APPROXIMATE TIME REQUIRED FOR PREPARATION

Preparation for such responsibility should include graduate education and a course leading to the degree of Master of Public Health or its equivalent, plus a period of actual experience in the field. This will require a minimum of

12 months' preparation after the baccalaureate degree.

For persons who have not completed such preparation, it is recommended that appointment be made contingent upon the subsequent completion of this training within a specified period.

Following such a course, experience in a voluntary health agency under supervision should precede the assumption of full executive responsibility.

VIII. TYPE OF INSTITUTION BEST FITTED TO GIVE THIS TRAINING

Among the facilities regarded as necessary for the adequate training of professional workers for this position is competent instruction, including laboratory exercises, under a variety of teachers who are recognized leaders in their respective fields. There should be a central group of teachers who devote full time to instruction in public health. There is great advantage in obtaining this special training in a university that has immediate access to and coöperative assistance from the faculties of schools of the medical and biological sciences, engineering, education, social and political sciences, economics and business administration. It is essential that the university undertaking to train such professional public health personnel at the graduate level have a suitable library for reference work and ample laboratory facilities. It is essential that such an institution have access to well organized health departments and voluntary health associations which provide facilities for supervised field training and experience. There is considerable advantage in having all necessary facilities for training all types of professional public health personnel in the same institution so that they may all participate in certain basic courses.*

*See Memorandum Providing Minimum Educational Facilities for Postgraduate Education of Those Seeking Careers in Public Health *AJPH*, 32, 533 (May), 1942.

The training available in good schools of social work may provide some but not all of the background necessary for an executive secretary of a voluntary health association, who must also take certain courses in public health.

It seems likely that persons employed in these positions in the future will be responsible for voluntary health interests in more than one special field and consequently they should be given a broad basic training of the kind outlined above. To such basic training a specialized focus may readily be added.

It is the intent of this report to cover the field of all executives in voluntary health agencies except visiting nursing associations. Persons particularly interested in the field of tuberculosis pre-

vention should note the report on duties and qualifications of tuberculosis executive secretaries adopted in 1937 by the National Tuberculosis Association on the recommendation of the National Conference of Tuberculosis Secretaries.

The professional competence and accomplishments of many persons now serving as executive secretaries of voluntary health agencies who have not had formal postgraduate academic training are recognized. Persons who have achieved real and notable success during many years' full-time experience in a well organized voluntary health agency should be considered as eligible for positions of higher grade in the same or another similar agency.

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The Subcommittee assisting with the preparation of this report, to whom the Committee on Professional Education expresses grateful appreciation, consisted of:

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* Deceased

Industrial Hygiene and the Expanded Federal-State Vocational Rehabilitation Program*

DEAN A. CLARK, SENIOR SURGEON (R), U.S.P.H.S.

*Chief Medical Officer, Office of Vocational Rehabilitation, Federal Security
Agency, Washington, D. C.*

IF industrial hygiene is the first step in the great task of reducing the harmful effects of illness and injury upon our economy and our working population, rehabilitation may well be regarded as the last. Since we are unfortunately not yet in a position to prevent all industrial accidents and diseases, and since diseases and injuries incurred outside of industry are also of great importance among employable persons, adequate rehabilitation services are highly essential if every individual is to contribute to our economy to the greatest extent of which he is capable. Every year, in spite of our best efforts at prevention, some 350,000 persons are disabled by injuries at work, at home, or on the highway, which are sufficiently serious to affect their employability. Besides, there is an untreated backlog of approximately 4,000,000 men and women so severely handicapped as to require physical restoration or vocational training or both if they are to be satisfactorily employable. The handicapped are not only forced to lead fruitless, unsatisfying lives without rehabilitation, they

are a drain upon our resources and a loss to our productive man power.

For twenty-three years, ever since the passage of the Federal Vocational Rehabilitation Act of 1920, we have had in this country a program for the rehabilitation of physically handicapped persons, conducted by the Rehabilitation Divisions of the various State Boards of Vocational Education, with assistance from the federal government in the form of grants-in-aid in funds. Under this program, up to 1943, 210,000 disabled individuals have been restored to useful, remunerative employment and to self-respecting, self-supporting lives. This is clearly far short of the need as indicated by the total number of handicapped persons, but it was an important achievement under quite difficult circumstances. The law had a number of limitations which made a complete program impossible. There was a statutory limitation of \$3,500,000 on the federal grant; no physical restoration services were included; mentally and emotionally handicapped persons were not eligible for service nor were there special services for the blind; federal funds could not be used to provide maintenance during rehabilitation. In short, the services were limited, for the most part, to vocational counseling, vo-

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

cational training, prosthetic appliances, and placement services for the physically handicapped.

Last year, however, under the pressure of war man power needs, Congress decided permanently to broaden and strengthen the nation's vocational rehabilitation program, and enacted the Barden-LaFollette amendments (Public Law 113, 78th Congress) to the Vocational Rehabilitation Act. These amendments authorize the use of federal funds as grants-in-aid to State Boards of Vocational Education and State Agencies for the Blind for "any services necessary to render a disabled individual fit to engage in a remunerative occupation," including, in addition to the continuance of the services already provided under the original Act, complete medical examinations of every client as a part of the determination of eligibility, necessary medical and surgical services, transportation, maintenance during rehabilitation, hospitalization up to 90 days, occupational tools and equipment. Thus it is now possible for the states to utilize federal funds to aid them in carrying out a complete rehabilitation program for all disabled persons. The federal government reimburses the state 100 per cent for administrative costs and 50 per cent for service costs. These services are primarily for the civilian handicapped, rather than for veterans with service-connected disabilities, who are served by the Veterans Administration under a different Act (Public Law 16, 78th Congress).

With regard to physical restoration, which naturally will be of the most interest to this audience, there are no limitations as to the scope of services which may be provided. They may include not only physicians' and hospital services and prosthetic appliances, but also dental care, convalescent home care, nursing in the hospital or at home, physical therapy, occupational therapy;

work therapy, speech therapy, drugs, supplies, etc.

There are, however, some limitations or definitions as to the types of cases which may be brought into the picture: In the first place, the individual, of course, must have a disability which is a substantial employment handicap.

Second, for physical restoration services, the disability must be a static one. Clearly, the intent of Congress in using the word "static" here was to differentiate this rehabilitation program of physical restoration from ordinary medical care for acute illness or injury. In general, we take the word "static" to mean any disability that is relatively stable or slowly progressive. Thus a case of chronic glaucoma, for example, would not have to wait until blindness had occurred before treatment could be provided.

The third limitation with regard to physical restoration is that the disability, in addition to being an employment handicap and static, must be such that by appropriate treatment, it may be expected to be substantially reduced or eliminated within a reasonable period of time. The phrase "within a reasonable period of time" obviously was intended by Congress to distinguish this program from the long-term care of chronic conditions that cannot be much improved. The emphasis is thus upon reconstruction for employment—filling a gap in our publicly supported medical care program that has long needed filling.

Finally, there is a fourth limitation on medical services of a somewhat different character: that physical restoration services may be provided at public expense only in so far as the individual is unable to pay for these services in whole or in part from his own resources. The basic medical examination, however, and the fundamental services of vocational guidance and counseling, vocational training, and placement may be

furnished without cost to the client, regardless of his financial resources.

This pattern follows the traditional pattern in this country. Vocational training, which corresponds to public education, is available to all without regard to financial resources, whereas public medical service, as is generally true, is made available only on a needs basis.

Briefly, the program is being administered in the following manner: There are 51 State Boards of Vocational Education, including those of the District of Columbia, Hawaii, and Puerto Rico, and 31 State Agencies for the Blind, so the national office is dealing with 82 separate state agencies in this program. Where there is no state agency for the blind, services for that group also are provided by the State Board of Vocational Education.

The Office of Vocational Rehabilitation has obtained physicians through the assignment of four medical officers of the U. S. Public Health Service. A national Professional Advisory Committee has been appointed, composed of representatives of such fields of medicine as orthopedics, tuberculosis, psychiatry, otology, industrial medicine, etc., and of hospital administration, public health nursing, medical social work, physical therapy, and occupational therapy. Among its industrial medical members are Dr. Carl M. Peterson, Secretary of the American Medical Association Council on Industrial Health; Dr. Harold Vonachen, Medical Director of the Caterpillar Tractor Company; and Lt. Colonel Raymond Hussey, Director of the Army's Industrial Hygiene Laboratory, and formerly chief consultant in industrial diseases for the Maryland Industrial Accident Commission.

A few fundamental administrative requirements regarding physical restoration have been set forth by the federal office with the concurrence of its Pro-

fessional Advisory Committee. In the first place, the states are required by the federal standards to have in each state agency a supervisor of physical restoration. This person will presumably be a worker with experience in the medical field, but not usually a physician.

In the second place, each state agency is required to have a physician as medical (administrative) consultant, full- or part-time.

Third, there is required a medical social work consultant, full- or part-time.

Fourth, a state professional advisory committee, similar in pattern of composition to the national committee, is to be appointed by each state agency.

In furnishing physical restoration to the disabled, it is obviously essential that the highest standards of professional care be utilized. The state rehabilitation agencies are therefore being encouraged to select the best qualified physicians, surgeons, and technicians, and the leading public and voluntary hospitals, primarily those approved by the American College of Surgeons. It is probable that most of the treatment services under these programs will be specialty services, and it is expected that these will generally be rendered by physicians qualified for certification by the various American Medical Specialty Boards.

Rates of remuneration for medical and other professional services are to be established by the state agency in consultation with its professional advisory committee. These schedules are not to exceed those in use by the state's crippled children's, or workmen's compensation programs, or those used by the Veterans Administration or the U. S. Employees' Compensation Commission. The purchase of hospital care is to be based on the inclusive per diem rate method, preferably identical with the reimbursable cost formula devised

by the Children's Bureau and utilized by state agencies administering the Crippled Children's and Maternal and Child Health (including EMIC) programs. We are recommending not a similar method of cost accounting, but an identical one, so that a hospital participating in programs of both agencies would prepare figures for the same report form, submitting a properly certified copy to the state health department for the EMIC and another to the State Board of Vocational Education for the rehabilitation program.

Broadly considered, the expanded vocational rehabilitation program is an addition to the public health and industrial hygiene services of the country, as well as to the educational and employment services. From the start, as evidenced by the assignment of medical officers of the U. S. Public Health Service to the Office of Vocational Rehabilitation, the closest coördination with existing public health work has been contemplated. This point of view has been further exemplified in early attempts to draw close together the state health departments and the state rehabilitation agencies. On April 22, 1944, the Surgeon General of the Public Health Service wrote all state health officers apprising them of the new federal functions in rehabilitation, and asking them to offer assistance to the state programs. At about the same time, Michael J. Shortley, Director of the national Office of Vocational Rehabilitation, wrote to all state rehabilitation directors, suggesting that state health officers be invited to assist in their work. The response has been gratifying. In nearly all states, now, the health officers sit on the advisory committees of the rehabilitation agencies. In many, a physician from the health department staff has been assigned, on a part-time basis, to act as medical (administrative) consultant for the State Division of Rehabilitation or

for the State Agency for the Blind. Medical social workers have also been loaned by the health agencies to the rehabilitation programs. In many instances, clinics for crippled children, already established under the health department, are being utilized by rehabilitation agencies. The same advisory committees are being consulted, the same fee schedules are being adopted, and the same all-inclusive per diem method of paying for hospital care is being employed by both agencies. All of this, we hope, will serve to make the best use of the facilities and services of both agencies for their mutual benefit and will prevent duplication and competition.

Industrial hygiene and vocational rehabilitation have much to gain from each other as this expanded program develops to full usefulness. The Industrial Hygiene Division of the U. S. Public Health Service has brought the possibilities of coöperation to the attention of all industrial hygiene groups in its *News Letter*, and the Office of Vocational Rehabilitation has asked all state rehabilitation agencies to confer with state industrial hygiene officials. We in the field of rehabilitation need and want the aid of industrial hygiene in many ways. Perhaps the most important is in the matter of placement of handicapped individuals in industry. Even more than for the ordinary worker is it important for the handicapped to work under conditions conducive to good health. Bad working conditions can make a one-eyed worker blind, can cause a cardiac to go into decompensation, can result in a relapse in an individual with arrested tuberculosis.

Rehabilitation services will fail unless they end with placement of the handicapped not only where they can function most efficiently but also where increase of their disabilities will be prevented. Rehabilitation is thus directly

concerned with the best in preventive medicine. We hope that state rehabilitation directors will constantly seek the assistance of industrial hygiene divisions in determining the health standards needed in various occupations to make them safe for handicapped persons—or even to make them useful in reducing the worker's disability. Such collaboration will be valuable, too, for industrial hygiene, because it will serve to bring out new problems needing solution, and will illustrate dramatically by the needs of the handicapped the importance of maintaining high standards in industrial hygiene for the benefit of all workers and for efficiency in production.

We also seek your coöperation in referring disabled individuals to the state agencies. Persons cannot be rehabilitated unless they know about the services available. Remember that any individual who has a disability that constitutes an employment handicap

and who can be rendered employable or more advantageously employable may be accepted. Many of you see such persons in your work; give them the opportunity to benefit from our services.

Finally, we shall be looking to you for leadership in research affecting our work. Little is known scientifically about the measurement of the physical capacity of an individual to do a job, especially the capacity of a handicapped individual. New methods must be found to guide us in deciding what work a man can do safely or with benefit, and what he should avoid because of his disability.

There is much we can learn from you, and there are some services we can offer you. We shall do all we can to foster coöperation between us, and we are looking forward to working with you for the common benefit of our industries and of our millions of potentially useful disabled workers.

Best Sellers in the Book Service for April

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| <i>An Introduction to Public Health.</i> Harry S. Mustard, M.D. 2d ed., 1944..... | \$3.25 |
| <i>Approved Laboratory Technic.</i> John A. Kolmer, M.D. and Fred Boerner, V.M.D. 4th ed., 1945..... | 10.00 |
| <i>The Control of Communicable Diseases.</i> American Public Health Association. 6th ed., 1945..... | .35 |
| <i>Global Epidemiology.</i> James S. Simmons, M.D., Tom F. Shayne, M.D., G. W. Anderson, M.D., and H. M. Horack, M.D. 1944..... | 7 00 |
| <i>Handbook of Communicable Diseases.</i> Franklin H. Top. 1941..... | 7.50 |
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American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 35

May, 1945

Number 5

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FRANKLIN DELANO ROOSEVELT

WHEN they learned of the death of President Roosevelt, millions of men and women throughout the world felt the bereavement and the dazed uncertainty of children who have lost a father. In London and Paris, in Moscow and Chungking, he has been the outstanding symbol of the democracy for which we have suffered and fought.

As the days pass, this sense of deprivation merges in a deeper appreciation of the glory of a life lived at the peak of devotion to mankind and closing almost at the climax of victory for the common causes of our race. He has carried his work so far and done it so well that we should be craven if we doubted our moral strength to follow through on the broad lines he has laid down.

The great ones of the earth have testified to the wider implications of Franklin Roosevelt's life. We can record here only our gratitude for the leadership he has given in our little corner of the field of human culture. As Governor and as President, he supported with notable results the upbuilding of the New York State Department of Health and the United States Public Health Service. In Washington, he gave us our first national Social Security Program and our first national Housing Program—two essential factors in the structure of public health.

He was a great American who piloted our country through two of the most perilous crises of its history—the Great Depression and the Second World War; and he marked out the course we can follow to attain security from similar catastrophes in the future. He was a great humanist in the sense defined by Archibald MacLeish when he said, "It is necessary to believe in man, not only as the Christians believe in man, out of pity, or as the democrats believe in man out of loyalty, but also as the Greeks believed in man, out of pride."

Humanism in this connotation was perhaps the keynote of President Roosevelt's personality. He understood human needs and he had faith in human power. To justify that faith by carrying forward the age-long struggle for a better world is our obligation and our opportunity.

THE NURSE IN INDUSTRY

THE year 1945 marks the fiftieth anniversary of the first utilization of the services of the nurse as a factor in promoting the health and efficiency of industrial employees.¹ Since Fletcher D. Proctor, president of the Vermont Marble Company engaged Ada Mayo Stewart for this purpose in 1895, much water has passed over the dam. The March issue of *Public Health Nursing* presents some reminiscences of this pioneer effort by Miss Stewart (now Mrs. Henry J. Markolf); and Bethel McGrath contributes an admirable review of the evolution of this branch of nursing service during the half-century which has elapsed.²

The National Survey of Registered Nurses conducted in 1944 reported 11,220 industrial nurses in the United States, and Dr. J. W. Mountin has estimated that this number should be nearly doubled (raised to 20,000) in the post-war period. We hope and believe that American industry in its reconstruction phase will be conscious of the vital importance of the human factor in the production problem and will plan broadly and constructively for the promotion of health, efficiency, and morale. The industrial nurse should occupy an important rôle in this task—a rôle which will be particularly vital in view of the war veterans to be reemployed in industry, who will need special consideration from the standpoint of adjustment, both physical and emotional.

The problems of industrial nursing are peculiarly difficult, on account of the professional isolation in which the factory nurse so often works. It was for this reason that a Committee To Study the Duties of Nurses in Industry was established by the Public Health Nursing Section of the A.P.H.A. in 1940, on the suggestion of Ruth Houlton, and under the chairmanship of Olive M. Whitlock. The report of this committee, published in 1943⁴ is a document of the very first importance. It outlines in detail the specific duties which the industrial nurse should be called upon to perform—and others which she should *not* be called upon to perform; it suggests sound machinery for organization and channeling of responsibility; it emphasizes the opportunities of the industrial nurse in the plant health education program and in the promotion of certain specific worker welfare activities; and it recommends that industrial nursing service be extended to include home visitation. The Publications Lists of the A.P.H.A. and the N.O.P.H.N. contain many other valuable reference sources in this field. Among recent contributions are the discussion by Anna M. Fillmore of nursing records in industry,⁵ and by H. G. Dyktor of relations between industrial hygiene and labor in the present issue of this JOURNAL.⁶

The Committee on Duties of Nurses in Industry recommends that one industrial nurse should be provided for up to 300 employees; 2 or more nurses for up to 600 employees; 3 or more nurses, up to 1,000 employees; 1 nurse for each additional 1,000, up to 5,000 employees; and one for each additional 2,000 employees above that point. The problem of the small plant—as in other fields of industrial health—is the weakest link in our chain. Some 26 million workers in the United States are to be found in plants employing less than 500 workers each; and 13 million are in plants employing less than 100 workers. The only practical way to meet their needs is through part-time service provided by a voluntary or official public health nursing group. Beginnings made in this field have done little more than scratch the surface. In New York City, where the Visiting Nurse

Service has offered such service, less than 0.5 per cent of employees in shops employing less than 500 workers have been reached. In Long Island City, an experimental demonstration works on a program of 3 hours of nursing service per week per 100 employees—a far cry from the standard of one full-time industrial nurse per 300 employees cited above. Even such tentative approaches are, however, of value. Anna M. Fillmore has presented an admirable review of part-time nursing to the small plant,⁷ in which she emphasizes that such service should be planned under the guidance of a representative community group (including labor, as representing the consumer, and the professions and official agencies providing other industrial health services); that it must be integrated with a parallel community plan for providing part-time medical service for small plants⁸; and that the nurse serving in this field should have specific training in the industrial field, continuous in-service education, and adequate supervision.

This problem presents a definite challenge to the public health and nursing professions. It is by no means easy of solution and will require the best thinking of all groups directly concerned; and also of our educational institutions. *Public Health Nursing* reminds us⁹ that "Since the basic preparation of nurses can be only broad and general, industrial nurses are seeking added preparation through postgraduate work from universities." It is gratifying to know that "Universities are preparing to meet this need by providing special courses and some will offer a year's program of study in industrial nursing as the demand arises."

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HOUSING INSPECTION — 1945 MODEL

THE Committee on the Hygiene of Housing of the A.P.H.A. was established in 1936 (on the request of the Housing Commission of the League of Nations) to develop a scientific health approach to the important problems of housing. It has served as a valuable link between public health groups on the one hand and housing and planning bodies on the other. During the spring and summer of the present year, it will publish in detail a method of attack on one particular phase of the general problem which is of direct significance to every health administrator—the quantitative appraisal of substandard housing.¹

The local health officer, in almost every community, is, or should be, officially responsible for the correction or condemnation of housing conditions which constitute a public nuisance or are directly detrimental to health. He has generally worked in this field in a haphazard fashion, often only on stimulation by individual

complaint, and without generally accepted standards to guide an inspection staff, whose members as a rule are not possessed of special technical skill. It can fairly be said that this field of health administration has seldom been a source of pride and satisfaction.

To meet this situation, the Committee on the Hygiene of Housing has prepared—after four years of preliminary study and exhaustive retesting—an inspection method which makes it possible for the average health department inspector (or for even less trained personnel) after a very brief period of instruction, to appraise the quality of the individual dwelling unit on an objective and quantitative basis. The quality of the physical environment of the structure—often as important as that of the home itself—can also be evaluated under this plan, by the health staff in coöperation with other local departments. The standard appraisal covers 30 specific items in regard to the structure, and 24 items in regard to its environment, carefully selected on the basis of their hygienic importance and practical measurability. For each of these items there has been worked out a series of penalty scores, related to the health significance of each item. Adequate homes in a satisfactory environment will approximate a total penalty score of zero; extreme slum areas have incurred median scores of the order of 125 penalty points for environment and 150 points for dwelling conditions. Furthermore, the system also identifies certain Basic Deficiencies, which represent defects of such a serious nature as to warrant direct and immediate official action. Both penalty scores and Basic Deficiency scores have, in repeated tests, been found to give a clear and reliable measurement of actual housing conditions, which can be used as a basis for remedial action.

While the method is based on standard schedules, it has a high degree of adaptability. The scoring of deficiencies can be modified to suit local conditions. Heating facilities, for example, are of major importance in a northern city but not in the deep South. Special items of local importance can be added to the schedules, and a study may be made either on a sampling basis or by inspection of every dwelling.

This appraisal procedure has been employed for official use in Portland, Me., New Haven and several smaller cities of Connecticut, and is at present being applied on a large scale in Los Angeles. Studies of limited areas have been made in Washington, D. C., Philadelphia, Pa., and Red Wing, Minn.

The cost of applying this procedure has proved reasonable. The dwelling appraisal can be accomplished at a rate of 3 man-months of time per thousand dwelling units for the field survey; with approximately the same amount of clerical work for office processing and analysis. The environmental survey will take from $\frac{1}{4}$ to 2 man-days per block, for field and office work combined, depending on the detail of results desired.

The use of this appraisal method has been found of the greatest value in city planning and the location of housing and redevelopment projects. It yields information urgently needed by housing and planning bodies and provides a basis for coöperation with such groups, which is essential to the success of health efforts in this field. After a survey has been completed, the quality of each block, or other significant area, can be charted so that it is possible to determine quantitatively the degree and kind of inadequacy which exists. It may thus be determined whether a given area is suitable for rehabilitation or whether it is so far gone that it must be entirely replaced by new housing or diverted to other than resi-

dential use. In Memphis, the Health Department has used a similar procedure to determine where its legal powers can be most effectively used.

We look forward to the time when the health department will employ this technique, or some of its major elements, for continuous and routine survey of all potential problem areas, instead of limiting its work in housing to response to random complaints. We should not have made much progress with restaurant inspection if we limited our efforts to conditions called to our attention by irate customers. We shall achieve full results with regard to housing only when the program is developed as a truly comprehensive one.

For this purpose, we have now a relatively simple and economical instrument, which can raise housing inspection to the level of scientific and effective administrative practice.

REFERENCE

1. The technique of this appraisal procedure is described in three reports published for the committee by the Milbank Memorial Fund under the title "An Appraisal Method for Measuring the Quality of Housing." Part I, describing the general technique and illustrating how its results can be applied to local housing problems, is already available; Parts II and III, which give details of survey and scoring procedure for the dwelling and its environment, respectively, will be issued during the summer. All reports may be obtained from the Book Service of the Association.

SCHOOL HEALTH INSTRUCTION IN NEW YORK STATE

HEALTH instruction in the public schools of the United States was first introduced into the curriculum in the latter part of the 19th century under most unfortunate auspices. The laws of the time (some of which are still on the statute books) required the teaching of hygiene primarily as an adjunct to the temperance movement; and definite allotments of time were specified to be devoted to the horrors of alcohol. Lurid descriptions of the condition of the drunkard's stomach were, indeed, the bright spots in a dreary routine of anatomical detail, which constituted a major outrage on the unfortunate child population of the day.

Early in the present century, Dr. L. Emmett Holt of New York, with the very competent aid of Sally Lucas Jean, initiated a far-reaching reform in health instruction, concentrating on habit formation, rather than the names of the bones of the skull and including dramatic teaching devices for vitalizing the whole subject. In no field of educational technique have greater advances been made during the past quarter-century.

Procedures are still, however, spotty and uneven. A study made in 1938 in New York State schools,¹ "revealed a wide range of achievement within the apparently uniform framework of the state-wide system." In one community, the survey reported that "From kindergarten through junior high school, there is a definite and planned sequence of instruction which 'takes into consideration the living problems of the children' and is 'functional rather than theoretical.'" "Health instruction is, throughout, correlated with daily living and markedly individualized. There is planned coöperation between home and school so that parents are 'taken along' with the plan of health instruction." At the other extreme were school systems where instruction was purely formal, based only on the use of a textbook and "almost as lifeless and pedagogically ineffective as the 'temperance physiology' of twenty years ago"; and other systems with "a program conceived in the spirit of modern education but so planless and so lacking in content as to be quite as valueless as the dead routine of unrelated content."

It is gratifying to note that the Division of Health and Physical Education, of the State Education Department at Albany, under Director Hiram A. Jones, has recently taken important steps to raise the general level of teaching in this important field. In 1942, the Commissioner of Education adopted a new set of Regulations on Health and Physical Education² which contained the following major provisions: The elementary school curriculum shall include health teaching for all pupils, including in kindergarten and primary grades a program for "guiding the children in developing desirable health behavior, attitudes and knowledge through their everyday experiences in a healthful environment"; and in grades 4, 5, and 6, planned units of teaching "which shall include health instruction through which pupils may become increasingly self-reliant in solving their own health problems and those of the group." In junior high school grades (7, 8, 9), in addition to continued health guidance, "provision shall also be made for approved health teaching, either as part of a broad science program or as a separate course." In the senior high school grades (10, 11, 12) "provision shall also be made for an approved course or courses in health teaching carrying one unit of credit." The requirement of unit credit represents an advance of major importance in making health teaching a vital reality.

A final paragraph on the general scope of health instruction deserves quotation:

"The staff of each school shall coöperatively plan a unified, sequential program including instruction in the following:

"a. Adjustment of the physical, mental, and social aspects of the school's environment to the needs of pupils.

"b. Provision for the study of children's health needs and special attention to the health of individual pupils through personal advisement and remedial instruction.

"c. School lunches, adequate diets, and food habits.

"d. Coöperation with parents in studying individuals and planning for health; and

"e. Coöperation in community health activities."

The formulation of such a general program is a first step along the road. The next essential is provision of basic teaching material: and the University of the State of New York (of which Health and Physical Education is a division) issued last fall an admirable Health Teaching Syllabus for Junior and Senior High Schools for this purpose.³ The Syllabus was prepared with the advice of leading experts in public health and education and is a notable contribution in its field.

A third essential—if programs and syllabi, however excellent, are to become effective—is the personality and competence of the teacher. The New York regulations require that health instruction in the high school grades shall be given by "teachers with approved preparation," and that "a member of each faculty with approved preparation shall be designated as health coördinator." Here is the rub! The number of certificated health teachers is as yet highly inadequate. It is gratifying to know that steps have already been taken by the authorities at Albany to stimulate in-service training through summer sessions at teachers' colleges, through extension courses and through local workshops under qualified leadership. Much remains to be done; but New York State has made an excellent start.

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Credit Lines

INDIANA LOOKS AHEAD

"The Health Platform for the Coming Years" and an editorial "What of the Future of Health in Indiana" appear in the October issue of the Indiana State Board of Health *Monthly Bulletin*. Here Thurman B. Rice, M.D., Professor of Bacteriology and Public Health at the Indiana University School of Medicine and Acting State Health Commissioner during the absence in the service of the United States Navy of State Health Commissioner John W. Ferree, M.D., presents some of the material that appears in the Commonwealth Fund publication *Local Health Units for the Nation*. This is the title of the report of the A.P.H.A. Subcommittee on Local Health Units, and will be reviewed in the *Journal*.

Since its appointment in July, 1942, the committee has been preparing a proposed plan for local public health service to serve every individual in every county of the United States. This report will show for each state existing personnel and budgets as well as proposed basic minimum personnel and budgets for each of the 48 states and the District of Columbia. Using the material of the committee, Dr. Rice points out that, although Indiana is among the richer states, its per capita expenditures for local health service are fifth from the bottom and less than those of three states much less favored economically, Mississippi, Arkansas, and Alabama.

Dr. Rice, in his articles suggests that the one dollar per capita (the amount suggested by the committee as adequate for a basic minimum local health service) would provide \$3,500,000. He estimates that this sum is one one-thousandth of Indiana's share of one

year's cost of the war. He says further graphically that "it would build about 100 miles of concrete pavement or would put Indiana among the leaders with regard to our most valuable asset—health."

Among the proposals made in "The Health Platform" are: a reorganization of the State Board of Health, a codification of the public health laws, the organization of the state into health districts of such size that each district may have an efficient full-time health department, and the development of a strong Department of Public Health at the Indiana University School of Medicine.

This is one of the concrete evidences that the Committee on Local Health Units has had of the need which its work has met. It is glad to have made its contribution to the Health Platform of Indiana as approved by the Indiana State Board of Public Health and published in its monthly bulletin.

VITAL STATISTICS DIRECTORY

The Vital Statistics Section announces the publication of the third edition of the *Vital Statistics Personnel Directory*. The Directory was compiled under the sponsorship of the Membership Committee of the Vital Statistics Section, whose Chairman is Dr. Arthur W. Hedrich. The new *Directory* contains twice as many names as the first edition issued ten years ago. This increase is a dramatic illustration of the expansion in this field of public health activity, as well as a tribute to the efforts of the committee to secure complete coverage of persons engaged in the collection, publication, analysis or supervision of vital statistics.

Dr. Hedrich gives deserved credit to

the working committee composed of representatives from nearly every state who brought in the various listings. The directory was made possible only because of this coöperative effort. He further points out that the committee also endeavored to include all statistical personnel of public health agencies known to be serving with the armed forces.

The *Directory* will be distributed without charge to each member and Fellow of the Vital Statistics Section. The cost to others will be 75¢. Copies may be purchased through the Association's Book Service.

STATESMEN DISCOVER MEDICAL CARE

Under the above title, Michael M. Davis, Ph.D., Chairman of the Committee on Research in Medical Economics, summarizes a significant medical care event as follows in the April *Survey Graphic*:

On the eighteenth of January the estate of the late Edsel Ford—four acres sweeping down to the Detroit River two and a half miles from the center of the city—was overrun by auto workers. They were not trespassers. They owned it. Their union had bought it for a health center.

In the mansion where the grandchildren of Henry Ford once played, x-ray apparatus, laboratory benches, examining tables, and medical record files stood ready for work. At the dedication of this Health Institute the chief speaker was the Surgeon General of the United States Public Health Service. The family of Henry Ford has not "moved from shirtsleeves to shirtsleeves in three generations," but in much less than that time its employees have taken long steps from hired help towards self-determination. The Health Institute is part of that self-expression, based upon the understanding that the people's health may be achieved by the people themselves by organized as well as individual action.

This diagnostic clinic has been recognized as a community service. The Detroit War Chest has given \$40,000 for its educational and psychiatric work which will reach beyond the automobile workers themselves. The federal government has recognized its significance through the Public Health Service, three

members of whose staff are on the Institute's medical council.

Dr. Thomas Parran took the occasion of the dedication to offer the most comprehensive national health program which the U. S. Public Health Service has yet presented. He stated objectives, not a scheme of legislation or administration. In scope and aims his program goes beyond the Wagner-Murray-Dingell bill of 1943 and may correspond more closely to what rumor suggests the 1945 bill will contain.

At the time of the National Health Conference in 1938, the program of the U. S. Public Health Service covered hardly half this ground. During the same period, the American Public Health Association has made similar progress.

Then Dr. Davis summarizes the evidence of official interest in medical care: "adequate medical care . . . and the right to achieve and enjoy good health" as one of President Roosevelt's "basic freedoms," the declarations of both Wendell Willkie and Thomas E. Dewey during the 1944 campaign, Henry Wallace's inclusion of medical care in his "Economic Bill of Rights," and finally the Interim Report of the Senate Subcommittee on Wartime Health Education.

And what of conservative medicine in the meantime. Dr. Davis agrees that it has moved "up to twenty years behind the times." It no longer opposes health insurance *per se* but only compulsory health insurance; in other words, it accepts limited sickness insurance because no other course is open in view of public opinion.

SOME ACTIVITIES OF THE SECTIONS

Health Education Section Regional Program

Taking note of the nation-wide "Regionalism" movement, the Health Education Section of the Association is organizing the work of the current year on a regional basis. It has added to its committee structure six regional committees whose purpose "is to encourage the discovery of regional and local pub-

lic health needs; to locate and publicize effective regional practices now in operation; to find regional resources; to develop materials and practices applicable to the solution of local and regional problems." All Fellows and members of the Association working in the six regions are members of the regional committees. Other committees of the Section, such as those on Compensation and on Health Films, have representation from each of the regional committees.

Carrying the regional idea further, the Section is now planning that the program for the next annual meeting shall grow out of the committee work and be devoted to a study of the regional plan as developed by sociologists and public health workers.

What is "regionalism" and why is it developing? As federal functions have broadened, centralization and uniformity have increasingly developed in the past decade. In order to preserve the virtues of variety and individuality within a common framework, federal agencies such as the Farm Security Administration, the U. S. Public Health Service, and many others have organized their work in regions. Thus the regional officers can take account of the region's habits and traditions in a way that is not possible in a program wholly directed from Washington, or indeed from any single vantage point. Thus while technical procedures, minimum standards, and administrative practices grow out of centralization, the actual local performances are geared to meet the regional needs; regional staffs are residents of the region and are a part of its civic life.

This development stems back largely to the rural sociologists, as exemplified by Howard Odum of the University of North Carolina, who wants to preserve the separate flavors and customs of the various parts of the United States in spite of the great mobility of the popu-

lation and the various influences tending toward uniformity and regimentation. In other words, they want to preserve the virtues of being "different from the Joneses" rather than of "keeping up" with them.

PUBLIC HEALTH DENTISTRY

The book on Public Health Dentistry authorized by the Section on Dental Health and approved by the Editorial Board is taking shape. At the February meeting of the Editorial Board a suggested table of contents with possible authors was considered and approved. The book is designed as a source book rather than a textbook and will include, among others, chapters on dental economics, on trends in public health dentistry, on local, state, and federal programs, on the place of the dental hygienist, and on prepayment plans for dental care. The volume is planned to be ready for publication early in 1946.

THE SOCIAL HYGIENE CAMPAIGN IN THE OTHER AMERICAN REPUBLICS

Orchids to the American Social Hygiene Association for the October, 1944, number of the *Journal of Social Hygiene* which presents a resume of the social hygiene campaign in the western hemisphere outside of the United States and Canada. The issue carries not only an excellent summary of venereal disease control efforts in the various countries but a thumbnail digest which makes it easy for those of us trying to stretch our understanding to include the hemisphere.

TWENTY YEARS OF UNDERWOOD IN MISSISSIPPI

Prophets are not always without honor in their own countries, as witness the Underwood issue, September, 1944, of *The Mississippi Doctor*, which is the monthly organ of the Mid-South Post-graduate Medical Assembly and the

Mississippi State Medical Association. In celebration of Dr. Underwood's 20 years as Mississippi State Health Officer and his presidency of the American Public Health Association, and presiding officer of its annual convention in October, 1944, Dr. Underwood's colleagues in Mississippi, in the South, and in the nation joined to pay tribute to his pioneering and leadership in public health.

These colleagues — Dr. Leathers, Dean of the Vanderbilt University Medical School, Dr. Ferrell, formerly of the Rockefeller Foundation, Dr. Parran, Surgeon General of the U. S. Public Health Service, and many others—remind us that (a) Mississippi, with the lowest per capita income in the nation, has more than four-fifths of its population under full-time local health service, (b) as early as 1924, the year when Dr. Underwood became Health Officer, Mississippi abolished its inadequate system of local public health agencies and created county or district health departments, (c) death rates from tuberculosis, malaria, pellagra, typhoid fever, and diphtheria have been halved, maternal and infant mortality rates have decreased about one-third, (d) in 1929 Mississippi became the fourth state to establish a division of industrial hygiene in the State Department of Health, its three predecessors having been the industrial states of Connecticut, Michigan, and Ohio, (e) the present war production on the Mississippi Gulf Coast is possible only because the health department has carried out sanitation following the methods of General Gorgas in the Canal Zone. "The 12,000 employees of the Ingalls Shipbuilding Corporation at Pascagoula are as free from tropical disease as if they lived in New York or Chicago." (f) A program of rehabilitation of men rejected for military duty because of venereal infection, whereby one-third of such rejectees were made

available for military duty. In 1943, Mississippi led all states in the amount of anti-syphilitic drugs distributed by the State Health Department. It had also established three Rapid Treatment Centers.

These are but a few of Dr. Underwood's many achievements as Health Officer of Mississippi. Space forbids a similarly imposing list of his influence and achievements outside his own state. But we congratulate Dr. Ferrell on finding a happy phrase, "Public health statesman" to salute Dr. Underwood.

GO, AND DO THOU LIKEWISE

"A Hoosier, a birthright Quaker and a graduate of Whittier College, Jessamyn West was knocked down by tuberculosis while studying for her doctorate and had to make what she calls 'the horizontal approach to literature.' She has been writing sporadically for four or five years and has signaled her complete recovery by publishing three stories in the *Atlantic* since July of this year. But this, we feel, is only a beginning."

This is a footnote to a delicate and exquisite short story "Lead Her Like a Pigeon" by Miss West, published in the *Atlantic* for December, 1944. Her experience, about which by the way the story has nothing whatever to do, may encourage others facing months or years in bed to try "the horizontal approach" to literature or something else that will resolve their frustrations.

THE WAVE OF THE FUTURE

"The Wave of the Future," not a la Anne Morrow Lindbergh, but a la Maternity Center Association of New York is charted with accompanying colorgraphs in *Briefs*, the bi-monthly sheet of the Maternity Center Association. The past few years have seen a 25 per cent rise in the American birth rate: reaching its peak in 1943 and

already on its way down though still above normal.

This "wave" of babies first was felt in the overcrowding of obstetrical wards of hospitals, then baby carriage, diaper, and toy shortages. Soon schools will feel it, then later an abnormal number of new workers in industry, then a wave of marriages and new demands for homes and home equipment and then another wave of babies, and finally a wave of old age pensions and matured insurance policies.

But is this an ever-growing and expanding wave like the ripples in a pond? Alas, no, for after the peak of babies many of whom were "borrowed from the future," there will, like the inevitable pendulum that symbolizes human activities, be a downswing and then over-expanded maternity wards, schools, toy factories, yes, public health facilities, and abnormal distribution of youth and age will be here to haunt us. The Maternity Center Association concludes and advises: "This wave of the future must be closely studied by public health workers as they plan their services to meet community needs. Unless doctors, nurses, and public health administrators carefully watch this wave as it passes through the population, and adjust their services to rising and falling demands in certain age levels, the whole public health program can be gravely disorganized. Today is the time to prepare for this wave that is as surely on its way as tomorrow's weather."

SOME RECENT DEVELOPMENTS IN VD EDUCATION

By Radio in California

As recently as 1937 Dr. Thomas Par-
ran was cut off the air when he spoke
the word "syphilis." Six short years
later, Radio Station KFI, in Los An-
geles, in coöperation with the Los
Angeles City, County, and California
State public health departments was
each Saturday evening giving a broad-

cast series entitled "The Unseen
Enemy," a portrayal in dramatic form
of the "human value, the despair, the
tragedy and hope that are the hand
maidens of venereal disease." A survey
made after the first year of the series
indicated a listening audience of nearly
100,000 persons, ranking it with the
most popular broadcasts.

Late in 1944, thirteen of these radio
dramas were published by the Cali-
fornia State Department of Health,
Wilton L. Halverson, M.D., Commis-
sioner of Health, under the title "13
Against Syphilis." Some of the titles,
"Syphilis Discovers Columbus," or
"The Thrush Loses His Voice," give
a glimpse of the quality of the dramas,
far removed from moralistic lecturing.
Several of the dramas are written in
blank verse and all of them with taste
and restraint. Permission for repro-
duction may be arranged through the
California State Department of Public
Health, 760 Market St., San Fran-
cisco 2, Calif.

By Advertising and Radio in Canada

In approximately 1,000 daily and
weekly newspapers and selected maga-
zines, the Canadian Department of
National Health and Welfare carried
on a six weeks' national advertising
campaign against venereal disease at
the end of 1944, the first of the kind
in the country. Full page spreads with
pictures and text were prepared based
on the slogans, "Learn the Facts" and
"Fight V.D. on the 4 Sector Front"
(health, welfare, legal, moral). These
were accompanied by suggestions for
news articles of various kinds on vene-
real disease. At the same time the
department prepared a series of nation-
wide radio broadcasts to be supple-
mented with local broadcasts.

Not only did the campaign receive
strong editorial support in the news-
papers carrying the advertising, but
many others who were excluded because

of the financial limitations of the campaign, expressed serious concern at their non-participation.

*By Posters on Bus and Street Car
in New York City*

Savel Zimand, Director of Health Education of the New York City Health Department, tells of a new "first," the first time in the history of the department a message dealing with venereal disease was accepted and actually placed on display in transit lines. The first poster used for this milestone is a Kerry Drake comic strip warning against the venereal diseases as public enemies with deadly gangster guns. It is being displayed on street cars and buses of two of the boroughs of the city, Manhattan and the Bronx, and is considered a precedent-shattering event.

TWENTY YEARS OF CHILD LIFE SAVING

The *Statistical Bulletin* of the Metropolitan Life Insurance Company for January, 1945, reviews 20 years of progress in the saving of lives of children between the ages of 5 and 14, as reflected among such youngsters insured in the Industrial Department of the Metropolitan.

Among the findings reported in this summary is that, for every two children who die under current mortality conditions, five would have died if the death rate of only two decades ago had continued to prevail. This marked improvement has benefited each color and sex group, but not in equal measure; white children showed a larger reduction than Negro and girls did better than boys. The mortality among white girls at ages 5 to 14 is now at the remarkably low point of less than one per 1,000.

The most spectacular gains between 1922-1923 and 1942-1943 have been scored against the principal communicable diseases of childhood, which

showed a reduction of 93 per cent for the children of grade school age. The largest decrease was reported for diphtheria, the only disease in this group for which effective means of prevention and treatment have been available for the entire period. At present the death rate from diphtheria among this group of insured children is only one-twenty-sixth of what it was 20 years ago; as a result, the disease has been reduced from one of the principal causes of death of school age children, to one of wholly minor importance. A 90 per cent decrease in scarlet fever mortality and an 80 per cent decrease in both whooping cough and measles mortality have taken place during the same period.

Death rates from tuberculosis and pneumonia have decreased by three-fourths in the 20 years, the latter having been accelerated since 1937 when chemotherapy began to be used on a wide scale. A decrease of 70 per cent in the appendicitis mortality rate is attributed to the use of the sulfa drugs in cases complicated with peritonitis, to advances in surgical technique, and to an educational campaign, in which the public has been urged to seek medical care without delay and to avoid the use of laxatives in the case of abdominal pain.

Although rheumatic fever and its frequent end result in childhood, organic heart disease, recorded a drop of three-fifths in mortality over the 20 year period. rheumatic fever ranks first among diseases causing death at ages 5 to 14 and is a leading cause of disability and of death in early and middle life.

The death rate from accidents among children of elementary school age has been cut almost in half. This reduction has yielded a large dividend in lives saved, since accidents were and continue to be the leading cause of death at these ages. Automobile accidents, as a cause

of death, decreased 52 per cent among children during a period when the death rate from this cause for the total population was practically stationary. There was a noteworthy drop of 70 per cent in the death rate from burns and scalds, the leading class of fatal home injuries among youngsters, and of 50 per cent in the mortality from accidental falls. Safety education, modernization of homes, and greater attention to the care of young children are all thought to have contributed to the greatly reduced toll from accidents.

Mortality rates at the school ages have fallen to such low levels that the possibilities of further reduction are limited. Future progress depends upon the development of measures to prevent or control rheumatic fever, upon wiping out what remains of tuberculosis at these ages, and upon accident prevention. But, as the summary also points out, mortality statistics are at best an indirect criterion of the state of health of any group. We do not yet know how healthy are those who live and how successful we have been in not only preventing deaths of children but bringing them to adolescence and maturity without physical or mental disability and without disabling chronic diseases. In this area the challenge of the future lies.

With the same issue, the *Statistical Bulletin* embarks upon a second quarter of a century of publication. The Metropolitan and Dr. Louis I. Dublin are to be congratulated on this long history of notable public service.

WORTH ACQUIRING

"Your Stake in Community Planning," with lively, humorous illustrations and no—well, almost no—technical terms is the popular version of "Neighborhood Design and Control" by the National Committee on Housing. It attempts to give the average non-technical citizen the facts about city

and neighborhood planning and how it can affect his work and home surroundings. It is an interesting illustration of an approach that treats the citizen as an adult, rational being, interested in and able to influence the environment in which he and his family live. Available from National Committee on Housing, Inc., 512 Fifth Avenue, New York. Price, \$.35.

"Ideas for Teachers," Fall Motion Picture issue of 1944 has a comprehensive list of films for use in health education in elementary and secondary schools and other groups, with full instructions, sources, and prices. It represents a great deal of staff research and evaluation by the Nassau County Tuberculosis and Public Health Association, 1565 Franklin Ave., Mineola, N. Y.

"The society which fosters research to save human life cannot escape responsibility for life thus extended. It is for science not only to add years to life, but more important, to add life to the years." With this quotation from Drs. Piersol and Bortz defining geriatrics, "Borden's Review of Nutrition Research" devotes its March, 1945, issue to Nutrition in Geriatrics. It contains a discussion of the relation of nutrition to the life span, the nutritional requirements of the aged, dietary suggestions, and findings of some experimental studies in the diet of the aged. It ends with this hope, "The increased longevity of man may be made an incalculably valuable advance if health and vigor can be retained. . . . The reward may be the dawning of a new era of intellectual conquest, for man may then live long enough to think." This pamphlet can be secured from The Borden Company, 350 Madison Ave., New York 17, N. Y.

A folder on patients' education in tuberculosis hospitals produced by the

Bronx Tuberculosis and Health Committee, 226 E. Fordham Road, Bronx, N. Y., which has grown out of first-hand contact with tuberculous patients, includes a brochure, "Facts the Tuberculous Patient Should Know," and a series of letters for newly admitted tuberculous patients. Miss Gladys A. Adams and Miss Evelyn M. Rhodes are responsible.

"When He Comes Back" and "If He Comes Back Nervous," two talks to families of returning servicemen which should have wide usefulness, have recently been published by the Rehabilitation Division of the National Committee for Mental Hygiene, 1790 Broadway, New York 19, N. Y. (Price \$.15). They try to give families some picture of the emotional and psychological adjustments the returning soldier must make because of the war horrors he has seen, the disabilities he has suffered, or the lack of civilian understanding he has experienced. Parents and wives and friends are told what he needs in sympathetic understanding without pity, in listening with interest but without prying, in facing but not ignoring his disability. Not the least of its values is a chart showing "Where to go for what," or advice on the use of community resources, and a bibliography of pamphlets and books on the subject of the returning service men and where they can be secured.

In this connection one might also mention the series on "The Church and Returning Service Personnel" published or in preparation by the Federal Council of Churches of Christ in America, 289 Fourth Ave., New York. Among the titles already completed are "Attitudes and Problems," "Counselling to Meet the Needs," "Welcoming the Wounded," and "Government Plans for Demobilization." Soon to be released is "How Families Can Help."

The Free World Association of Hollywood, 213-14 Taft Building, Hollywood 28, Calif., has just published a list of 16 and 25 mm. motion picture sound films of the United States and other United Nations catalogued as to where and how they can be secured. If the list has a common theme it might be something like "understanding ourselves and our neighbors all over the globe." Among its titles are Pare Lorentz's incomparable "The River," "Children of China," "Dover," "The Dutch Tradition," "Grain That Built a Hemisphere," "Housing in Chile," "World Down Under," "Men of Medicine," "Life Begins Again," "Negro Soldier," and "Saludos Amigos," to mention only a few at random. Use of the films is suggested by all groups "who understand that the fight for peace must be waged as relentlessly as the battle of war."

The National Live Stock and Meat Board, 407 South Dearborn Street, Chicago, has prepared an "Elementary School Nutrition Teaching Kit" consisting of a nutrition reader, "You and Your Engine," a 32 page book illustrated with colored pictures and designed for children in the middle grades, and posters, work charts, and a teacher's manual. It is encouraging to see that the Meat Board has faith in the future of meat in spite of its present absence from what used to be known as a "groaning board."

"Social Hygiene News and Views," the monthly bulletin of the District of Columbia Social Hygiene Society, continues to have a special quality of making essential social hygiene material interesting.

"THE CAPACITY FOR COURAGEOUS
WRATH"

The Cleveland Child Health Association at its recent 16th annual meeting

recognized the 65th birthday of Richard A. Bolt, M.D., Dr.P.H., the Director. One of his associates when asked what was the most outstanding trait of the man who was being honored said that Dr. Bolt, to a larger extent than any other man of his acquaintance, had the capacity for courageous wrath. Not anger against wrong done himself but against injustices to other people, especially mothers and children. Among the other speakers, Congresswoman Frances Payne Bolton of Cleveland paid tribute to Dr. Bolt as a prophet who was not without honor in his own country. Dilworth Lupton, in his column in the *Cleveland Press* regarding Dr. Bolt, quotes Marriner S. Eccles, chairman of the board of governors of the Federal Reserve System, in warning us that "in the post-war economy the sort of deficit we should fear most is not financial but human."

Dr. Bolt presented "a blueprint of a new era for maternal and child health in Greater Cleveland."

PUBLIC HEALTH ENGINEERING IN THE FOOD INDUSTRY

Something new and of considerable significance in the field of sanitation is the employment by the National Biscuit Company of a sanitary engineer from the public health field. J. Lloyd Barron, C.E., a pioneer in local environmental sanitation work, leaves Nassau County, New York, where he has been County Sanitary Engineer for seven years, to undertake the establishment of a sanitary control of the food processing and storage plants of this major food industry.

The significance lies in the recognition by an outstanding industry that the application of the science and art of sanitation to a huge food operation deserves a separate and independent controlling agency within the organization having sanitation as its primary

interest. Too long food sanitation has been an incidental concern, subordinate to other objectives of the food processor.

It has been the general practice for the food industry to receive its policing from the outside at the hands of federal, state and local authorities. Here is an instance of a large food concern undertaking its own policing and starting the project with a technically qualified person from the public health field. It is a step which should be welcomed by all food control agencies.

Furthermore, this action is in line with post-war plans of many local health jurisdictions, notably New York City, to require the employment by the larger food handling concerns of personnel who have received special training in the sanitary protection of foods, and to whom is delegated the responsibility for sanitation within the establishment. The prospect is presented not only of progressively higher standards of food quality, wholesomeness, and safety, but of coöperation between the food industry and food regulatory authorities on the basis of a technical approach to the complex problems of food sanitation.

POSTERS FOR RESTAURANT SANITATION

The Association is in receipt of a series of 6 posters presented in the interests of restaurant sanitation by the U. S. Public Health Service, Washington, and printed by the U. S. Government Printing Office. It is the RS series, numbers 1 to 6. Each of these posters carries the caption ". . . for our patrons' health" and they relate to hand washing, to the handling of food and utensils in proper manner, to the refrigeration of perishable foods, the protection of foods from dust and spray, and to the thorough washing of dishes. The series is for sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

All books reviewed in these columns may be purchased through the Book Service.

Lead Poisoning — By *Abraham Cantarow, M.D., and Max Trumper, Ph.D.* Baltimore: Williams & Wilkins, 1944. 264 pp. Price, \$3.00.

This fine book is of especial interest to all workers in public health, particularly in the field of industrial hygiene. As the authors state, "Lead poisoning is almost exclusively an occupational disease, instances of accidental or non-industrial plumbism being encountered but occasionally in this country."

The authors have succeeded in bringing together and coördinating the available data on this subject; whenever possible, they have made known their considered opinions. The volume includes chapters on the absorption, transportation, deposition, and excretion of lead; pathology and pathological physiology; chemical manifestations; lead in blood, body fluids, and excretions; normal intake; treatment; occurrence; lead products; and analytical procedures for the determination of lead. There are also a bibliography, index, and tables. The chapter on the Treatment of Lead Poisoning was written by May R. Mayers, M.D., and the chapter on Analytical Procedures is the work of M. B. Jacobs, Ph.D.

The book is well cross-referenced. Printers' errors are relatively few. On page 19, "triethyl lead" should read "tetraethyl lead."

There is a logical presentation and fine correlation of the material. The authors have recognized the importance of precision in analytical procedures in the evaluation of data obtained by different investigators, and the need for accurate analytical methods as a basis.

Under Lead Products in Industry, the authors discuss in considerable detail the lead hazard in the storage battery industry; particular emphasis is placed upon the control of this hazard. The section on Analytical Procedures includes most of the recognized methods of analysis, but does not give a good evaluation of the procedures which are described. This reviewer takes exception to some of the recommendations concerning the collection of air samples. Size of samples should not be based upon the ease of subsequent analytical manipulations and calculations but rather on the nature of the particular operation and fluctuations in the environment. Exception is also taken to the statement on page 219 that "these methods (of analysis) are approximately equal in sensitivity and precision."

Some of the directions in the procedures which are described are at variance with recommendations in the recently published A.P.H.A. *Report on Methods for Determining Lead in Air and in Biological Material*. It is unfortunate that this report was not available at the time this book was written.

The authors have made a valuable contribution to the literature on plumbism, and this volume is, therefore, highly recommended to all those interested in occupational disease and industrial medicine. F. H. GOLDMAN

Employment Opportunities in Public Health—Coöperatively prepared for Employment Counselling Agencies by the Committee on Professional Education of the American

Public Health Association and the U. S. Public Health Service. New York: American Public Health Association, 1945. 30 pp. Free.

Condensed in this brief compass are the outlines of positions in public health in a form suitable for use of the vocational counsellors dealing with those who leave the armed services and seek careers of various sorts. This is a coöperative venture by the Association and the U. S. Public Health Service, and covers the essential features of the Association's officially adopted statements about qualifications for health officers, for engineers and sanitarians, for dentists, school physicians, medical administrators of specialized health activities, public health laboratory workers, health educators, industrial hygienists, executives of voluntary health associations, nutritionists, public health nurses and nurses in industry. The last two were prepared in coöperation with the National Organization for Public Health Nursing. Institutions in North America offering graduate degrees and certificates in public health and in sanitary engineering and public health nursing are listed. Dr. William P. Shepard, Chairman of the Committee on Professional Education, is to be congratulated for the way in which this booklet is pointed up to the non-technical person, either with or without a college education, who is planning his life work. REGINALD M. ATWATER

Fundamentals of Internal Medicine—By Wallace Mason Yater. (2nd ed.) New York: Appleton-Century, 1944. 1152 pp. Price, \$10.00.

This book is a composite of scientifically established facts in the field of internal medicine and the personal clinical impressions of the author, and at times the latter are in conflict with the former. It is unfortunate that the book is not written so that these two types of information could be sepa-

rated. This is not a good book for the medical student since he would be unable to differentiate between them. It is a book which might be read by those specialists in internal medicine who are interested in learning the clinical impressions of the author. The bibliography in the book is practically entirely limited to references to other textbooks and not to source material.

The book would be more valuable and would serve the purpose for which it was designed if the statements which are based on scientific observation were properly documented by reference to original source material.

DAVID D. RUTSTEIN

Enrichment of Flour and Bread—Prepared by Russell M. Wilder, M.D., and Robert R. Williams, Sc.D. Washington, D. C.: National Research Council, National Academy of Sciences, 1944. 130 pp. Free (limited quantities).

The key to this bulletin is to be found in the preface. Its purpose is said to be the furnishing of information necessary for leaders who wish to promote the introduction of enrichment legislation into the 1945 sessions of state legislatures. Accordingly more than half the space is given over to a report of the experience in launching the movement for enriching white flour and white bread, first through the voluntary action of the milling and baking industries, and more recently through the Federal War Food Order covering bread and rolls, and through permanent legislation by six states. The later sections of the bulletin deal chiefly with the public health basis for enrichment of bread and flour in relation to other nutritional reforms, which, although worthy in themselves, do not seem to the Food and Nutrition Board as urgent on a country-wide scale or as simple of accomplishment.

The case for enrichment is presented

in detail and with persuasiveness. But in a publication from a disinterested scientific body, it seems out of place to quote, with apparent approval, Jolliffe's highly vulnerable statement that the enrichment of 75 per cent of New York City's bread supply has been accompanied by a marked decrease between 1938-1939 and 1942-1943 in the incidence of florid pellagra and florid beriberi among Bellevue Hospital patients. MARJORIE M. HESELTINE

An Outline of Tropical Medicine
—By *Otto Saphir, M.D.* Chicago: The Michael Reese Research Foundation, 1944. 85 pp. Price, \$1.00.

The current enthusiasm for tropical medicine appears to encourage the publication of shorter and shorter treatises to familiarize the medical profession with this field. This little book has been prepared for the attending and house staff of Michael Reese Hospital. It is described by the author as "an extended vocabulary of Tropical Medicine." The information presented was gleaned mainly from textbooks and from a brief period of study at Tulane University. Most of the statements are accurate, but there are a number of errors of omission and commission as one would expect. The book may be of some value as a pocket reminder of tropical medicine but cannot be recommended for general use.

HENRY E. MELENEY

The Etiology, Diagnosis, and Treatment of Amebiasis—By *Charles Franklin Craig, M.D.* Baltimore: Williams & Wilkins, 1944. 332 pp. Price, \$4.50.

This is essentially a new edition of the author's book *Amebiasis and Amebic Dysentery*, published in 1934, rewritten to include all the important information acquired since that time. There is no one better qualified than Colonel Craig to publish on this subject.

His former book was received as authoritative, and the new edition is even better because of its completeness.

In addition to the subjects included in the title, the book contains chapters on epidemiology, pathology, symptomatology, and prevention. The chapters on diagnosis include the differential diagnosis from other intestinal protozoa as well as microscopical, cultural, and serological examinations.

The book is well illustrated with photographs and line drawings, and is in excellent format. It should be in every medical and public health library and laboratory, and in the hands of practitioners who deal with intestinal infections. Its publication is timely because of the increased importance of amebiasis during and after the war.

HENRY E. MELENEY

Demographic Studies of Selected Areas of Rapid Growth—*New York: Milbank Memorial Fund*, 1944. 158 pp. Price, \$1.00.

This volume includes seven papers presented at the Round Table on Population Problems of the Twenty-Second Annual Conference of the Milbank Memorial Fund. Population problems with consideration of mortality, fertility, and migration in Japan are discussed by Irene B. Taeuber and Edwin G. Beal; in India by Kingsley Davis; in Eastern and Southern Europe by Wilbert E. Moore; in the Near East by Ernest Jurkat; in Egypt by Clyde V. Kiser and W. Wendell Cleland. The seventh paper by Frank W. Notestein, Chairman of the Round Table, is concerned with the problems of policy in areas of heavy population pressure.

These population experts have assembled available data from reports of population, births and deaths for the study of past and future trends of growth. In many areas the data are extremely limited. It is evident that satisfactory methods of recording these

vital facts should be established for accurate determination of population problems which affect the peace and prosperity of the world.

According to the authors, as public health measures are introduced and further reductions in mortality are made, the growth of population may be accelerated. In certain areas, birth rates are high and declines in birth rates are less rapid than the declines in death rates. With the rapid growth of populations in areas unable to support such increases, serious population problems may develop.

The authors describe the problems in selected areas of the world and discuss certain solutions through migration, reduction of the birth rate, industrialization, etc. Investigations such as these are essential for the study of the problems over the world and for the development of satisfactory policies for peaceful methods of adjustment.

RUTH R. PUFFER

Emotional Hygiene—By Camilla M. Anderson, M.D. Philadelphia: Lippincott, 1943. 249 pp. Price, \$2.00.

Before the war there was an expectant feeling among public health workers that Mental Hygiene was "standing in the wings ready to make its entrance on the stage" as the next major effort of concerted public health activity. Intervening events have served to add a more insistent note to the entrance cue. Books such as the one under review are therefore timely, and should be on the reading lists of all forward looking public health workers.

The value of this volume is out of proportion to its size. The fact that it is written in part especially for nurses, with a chapter devoted to problems met by public health nurses and social workers, does not detract from its value to all who are eager to attain for themselves the insight necessary for

happier and more effective living. The book is written in clear, simple language, enriched by illustrations from real life and lightened by appropriate veins of humor. Best of all, it bears throughout the stamp of a reverent and intellectually honest attitude toward those embarrassingly intimate mysteries of early personality development from which spring at some later time most of the emotional pitfalls of infantilisms, regressions, insecurities, evasions, imperfect emancipations, and other inadequate emotional adjustments to life.

Understanding emotional difficulties through a knowledge of their developmental components is the central theme of the book. Because progress in the field of mental hygiene, as in all aspects of public health, depends so largely on the knowledge and attitudes of the general public, to get the understanding contained in this small volume into the popular thought stream becomes an important duty of public health workers. Reading this small volume is not laborious, far from it. But even if it were, the labor would be well spent.

PAUL H. STEVENSON

Fundamentals of Bacteriology—By Martin Frobisher, Jr. (3rd ed.) Philadelphia: Saunders, 1944. 824 pp. 398 illus. Price, \$4.00.

The Third Edition of Frobisher's *Fundamentals of Bacteriology* has been reorganized completely and presents an excellent refutation of the statement that a textbook can become outdated between editing and publishing. The up-to-dateness of this textbook is reflected from the colored frontispiece of *Penicillium notatum* on through the newly added material on: cultivation in chick embryos, penicillin, viruses; poliomyelitis, lymphogranuloma venereum, light, electron and fluorescence microscopy, tissue cultures, gramicidin, bacteriophage, sulphonamide drugs, Rickettsiae, vitamin assay.

Much of the taxonomy of the 2nd edition has been reduced or eliminated, which will be welcomed by those beginning the subject. This phase of bacteriology is amply covered, however, in the chapters on Classification and Systematic Study. The 824 pages of the text include about 400 instructive illustrations (some in color) which clearly augment the text and ought to stimulate the imagination of both the student and perhaps the teacher. A careful perusal of the illustrations alone might serve well as the core of a super-accelerated course. Each chapter is followed by an essential bibliography of late date which not only covers the details of the printed text but should stimulate reading far beyond the covers of the book.

It is pleasing to note that the chapters on the too-often-neglected or too-often-omitted Higher Bacteria are retained for the edification and broadening of the students of the True Bacteria. The cultivation, classification and industrial applications of the yeasts and molds are adequately covered, together with the bacteriology of air, water, milk, and soil. The chapter on the Industrial Applications of Bacteriology is well written and illustrated. It should be of great interest and value to those students whose future lies along that particular groove. The History of Bacteriology and the Place of Bacteria in the World still retain their fine orientation value.

Some teachers might disagree with the sequence of the chapters, reasoning, for instance, that chapters 19-21 on Enzymes and Metabolism should precede chapters 14-18 on Disease and Immunology. This superficial criticism could be easily overcome by a little scientific island-jumping in the assignments.

This easily read volume is printed in clear type and on good paper. The index seems well arranged, complete

and workable. Both Dr. Frobisher (scientifically) and the Saunders Company (mechanically) are to be congratulated on the presentation of this well groomed textbook in these troublesome times. Undoubtedly it will become a much used standard text in all fields of bacteriology.

WILLIAM W. BROWNE

Foster Home Care for Mental Patients—By *Hester B. Crutcher*. New York: *The Commonwealth Fund*, 1944. 199 pp. Price, \$2.00.

Public health nurses will be interested in Miss Crutcher's book for three good reasons.

1. They see homes where mental patients of the type suitable for foster care can be successfully placed.

2. They occasionally have the responsibility of supervising such cases for mental institutions. Such assignments will probably increase after the war.

3. They need to know the attitude of the institution and the trends in foster home care to be able to answer questions from families and others.

The first six chapters are especially recommended and, if time presses, chapters 3-6 (Family Care as a Therapeutic Procedure, Selection of Patients, Selection of Homes and Supervision of the Patient) contain the most important facts for public health nurses to know. The material lends itself unusually well to staff discussion in a field of growing significance to public health nurses.

DOROTHY DEMING

Food Regulation and Compliance, Vol. I—By *Arthur D. Herrick*. New York: *Revere Publishing Company*, 1944. 646 pp. Price, \$10.00.

This book is primarily designed to assist the producer and the distributor in his efforts to comply with the present Food, Drug, and Cosmetic Act if he is engaged in interstate commerce or en-

gaged in intrastate commerce in any of the states which have adopted a similar act. The historical references to this Act and its predecessors are accurate and are of interest to food inspection officials as well as to the manufacturers or wholesalers.

In preparing the body of this work the author has utilized the Trade Correspondences of the present U. S. Food Administration as well as the Service and Regulatory Announcements and the Food Inspection Decisions of the old Bureau of Chemistry. He quotes extensively from decisions of the courts as found either in the notices of judgment of the department or elsewhere. One chapter is devoted to labels and labeling, and points out very clearly the difference between these two words as maintained in the Act. This chapter covers only ten pages but the next two chapters, entitled "False and Misleading Statements," cover one hundred pages with more than two hundred references, many to court decisions upon the various phases under discussion. The chapter on special dietary foods covers sixty-two pages, giving an accurate although much abbreviated dissertation upon the vitamins, including sources of these substances and the loss on storage, canning, freezing, and dehydrating.

The food inspection official can look over this book and ponder upon the almost insurmountable difficulties this new law has placed upon the manufacturers, and yet, except in a few instances, the manufacturers have been unusually successful in complying.

Mr. Herrick must have spent considerable time in gathering the data for this volume and has presented them in very clear and understandable English. The book is well indexed. It should be on the shelves of all manufacturers and wholesalers of products covered by the U. S. Food, Drug, and Cosmetic Act.

HERMANN C. LYTHGÖE

Family Health Service in Tuberculosis—*New York: Community Service Society, Department of Educational Nursing, 1944. 47 pp. Price, \$.50.*

As a supplement to more formal nursing instruction in tuberculosis nursing, this little pamphlet would seem to fill a definite need in the public health nursing field. The series of well chosen pictures and brief explanatory notes illustrate the various phases of home care of the tuberculous, including hospitalization of the patient, instruction and examination of the household contacts. In most communities it is not possible for the public health nurse to follow the patient in the sanatorium as closely as indicated, but the idea of continuing local responsibility for the hospitalized patient is desirable. This booklet should be of distinct value to the board of health nurse or visiting nurse charged with supervision of tuberculosis patients in their homes.

ALTON S. POPE

Global Epidemiology: A Geography of Disease and Sanitation—*By Simmons, Wayne, Anderson and Horack. Philadelphia: Lippincott, 1944. 504 pp. Price, \$7.00.*

The word "epidemiology" has been used to cover a multitude of sins and here it has been made global in scope. The real value of this book can be appreciated only if its principal title is forgotten. It is not an epidemiology but, as its subtitle states, "a geography of disease and sanitation." Part I deals with India and the Far East, and Part II with the Pacific Area. For each area there is an outline of the geography and climate and then a series of sections usually as follows: first, the form of local health administration; second, sanitary conditions of water supplies and facilities for sewage disposal; third, medical and hospital facilities, including data on hospital size, equipment, availability of drugs,

vaccines, x-ray, dental and nursing service, etc.; fourth, the occurrence of various diseases, their distribution, etiological agents, vectors, control programs, etc.

Many chapters also contain information on poisonous snakes, fishes, arthropods of medical or economic importance, and other animal and plant life affecting human welfare. Many sections include surveys of native foods and dietaries, as well as notes on the availability of other foods, both domestic and imported. Curious native habits such as betel-nut chewing and drug addictions are also mentioned occasionally.

The disease distributions are abundantly illustrated by schematic maps. At the end of the discussion of each area, there is a general summary in non-technical language of the most significant points of the survey, and a bibliography. Specific recommendations are made as to measures to be taken to avoid the health hazards peculiar to the area in question.

To place this book in proper perspective, it is necessary to understand its evolution. The material upon which it is based originated with a series of surveys conducted by the Medical Intelligence Division, Preventive Medicine Service, Office of The Surgeon General, U. S. Army, the purpose of which was to gather information which would be of value in planning the health protection and medical care of troops engaged in this global war. At first the areas selected were those of immediate military importance. Later the interest was extended to those countries which were of potential or possible importance. Material was collected by a large number of individuals, working more or less independently and utilizing every available source of information—libraries in various parts of

the country, files of governmental departments and of private agencies, interviews with persons who had traveled through or lived in the areas under consideration, etc.

Recognizing the potential value of this material, the Committee on Information of the Division of Medical Sciences of the National Research Council proposed that the original surveys be published after reëditing to remove all material the release of which might be inadvisable at this time. The present volume is the initial result of this proposal. In the words of the authors;

... no one can be as aware of the limitations of such a volume as those who have labored over it. Much of the material has been gathered under the impelling whiplash of speed. Military operations do not wait for painstaking scholarly research. . . . This book is thus released with full knowledge of its many inadequacies but in the hope that the material so contained will be of such value that those who labored on it will be forgiven for their errors, and that it may serve as a basis on which more extensive studies of *geomedicine* may be built in the reconstruction period to follow the present holocaust.

In the opinion of the reviewer, the authors are too humble in asking forgiveness. Such an ambitious project as a description of the medical ecology of all parts of the world must inevitably be full of errors and omissions in its embryonic state. On the other hand, to bring together in orderly presentation this wealth of useful information gathered from diverse sources, many of which are not ordinarily accessible, is an accomplishment worthy of praise. It is the signal recognition that in medicine as well as in politics and commerce, human relationships have expanded from the international into the global concept.

KENNETH F. MAXCY

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed in future issues.

- ADVANCES IN ENZYMOLOGY AND RELATED SUBJECTS OF BIOCHEMISTRY. Edited by F. F. Nord and C. H. Werkman. New York: Interscience Publishers, Inc., 1944. Vol. IV. 332 pp. Price, \$5.50.
- BACTERIAL INFECTION. WITH SPECIAL REFERENCE TO DENTAL PRACTICE. By J. L. T. Appleton, Sc.D. 3rd ed. Philadelphia: Lea & Febiger, 1944. 498 pp., illus. Price, \$7.00.
- BIBLIOGRAPHY OF INDUSTRIAL HYGIENE 1900-1943. Compiled by Ellen F. Bellingham, J. J. Bloomfield and Waldemar C. Dreessen. Washington, D. C.: U. S. Gov. Ptg. Office, 1945. Public Health Bulletin No. 289. 95 pp. Price, \$2.0.
- CONSCIENCE AND SOCIETY. A Study of the Psychological Prerequisites of Law and Order. By Ranyard West, M.D. New York: Emerson Books, Inc., 1945. 261 pp. Price, \$3.00.
- CONSTITUTION AND DISEASE. Applied Constitutional Pathology. By Julius Bauer, M.D. 2nd ed. New York: Grune & Stratton, 1945. 247 pp. Price, \$4.00.
- DOCTORS AT WAR. Edited by Morris Fishbein, M.D. New York: Dutton, 1945. 418 pp. 82 illus. Price, \$5.00.
- LEARNING THROUGH EXPERIENCE IN FAMILY HEALTH WORK. A Report of Student Participation in the East Harlem Nursing and Health Service Program, 1928-1941. New York: National Organization for Public Health Nursing, 1944. 103 pp. Price, \$1.0.
- MANUAL OF CLINICAL MYCOLOGY. Prepared under the Auspices of the Division of Medical Sciences of the National Research Council. Philadelphia: Saunders, 1944. 348 pp. 148 illus. Price, \$3.50.
- A MANUAL OF TROPICAL MEDICINE. Prepared under the Auspices of the Division of Medical Sciences of the National Research Council. Philadelphia: Saunders, 1945. 727 pp. 284 illus. Price, \$6.00.
- MASS RADIOGRAPHY OF THE CHEST. By Herman E. Hilleboe, M.D., and Russell H. Morgan, M.D. Chicago: The Year Book Publishers, Inc., 1945. 288 pp. Price, \$3.50.
- MEDICAL CARE SERVICES IN NORTH CAROLINA. A Statistical and Graphic Summary. Prepared for the North Carolina Commission on Hospital and Medical Care by the Department of Rural Sociology, North Carolina Agricultural Experiment Station. Raleigh: North Carolina Agricultural Experiment Station, 1945. 90 pp. Free from publisher.
- MICROBIAL ANTAGONISMS AND ANTIBIOTIC SUBSTANCES. By Selman A. Waksman. New York: The Commonwealth Fund, 1945. 350 pp. Price, \$3.75.
- MY SECOND LIFE. AN AUTOBIOGRAPHY. By Thomas Hall Shastid, M.D. Ann Arbor: George Wahr, Publisher, 1944. 1174 pp., illus. Price, \$10.00.
- NOTES ON NURSING BY A NURSE. By Sarah Corry, R.N. New York: D. Appleton-Century, 1944. 144 pp. Price, \$1.50.
- NURSING. A PROFESSION FOR COLLEGE WOMEN. New York: Nursing Information Bureau of the American Nurses' Association, 1945. 35 pp. Price, \$25.
- NURSING IN PREVENTION AND CONTROL OF TUBERCULOSIS. By H. W. Hetherington, M.D., and Fannie Eshleman, R.N. Rev. ed. New York: Putnam, 1945. 332 pp., illus. Price, \$3.00.
- NUTRITION WITH SENSE. Including Recipes and Menus for Joyful Eating. By Eleanora Sense. New York: M. Barrows and Co., Inc., 1944. 222 pp., illus. Price, \$2.00.
- OCCUPATIONAL THERAPISTS. The Outlook for Women in Occupations in the Medical Services. Women's Bureau, U. S. Department of Labor. Washington, D. C.: U. S. Gov. Ptg. Office, 1945. Bulletin 203, No. 2. 15 pp. Price, \$1.0.
- PHYSICAL THERAPISTS. The Outlook for Women in Occupations in the Medical Services. Women's Bureau, U. S. Department of Labor. Washington, D. C.: U. S. Gov. Ptg. Office, 1945. Bulletin 203, No. 1. 14 pp. Price, \$1.0.
- THE PSYCHOLOGY OF DIET AND NUTRITION. By Lowell S. Selling, M.D., and Mary Anne S. Ferraro. New York: W. W. Norton & Co., Inc., 1945. 192 pp. Price, \$2.75.
- SAFE AND HEALTHY LIVING SERIES. By J. Mace Andress, Ph.D., I. H. Goldberger, M.D., Marguerite P. Dolch and Grace T. Hallock. New York: Ginn and Co., 1945. Book I—Spick and Span. 152 pp. Price, \$84.

- Book II—The Health Parade. 184 pp. Price, \$.88.
- Book III—Growing Big and Strong. 252 pp. Price, \$.92.
- Book IV—Safety Every Day. 258 pp. Price, \$.92.
- Book V—Doing Your Best for Health. 298 pp. Price, \$.96.
- Book VI—Building Good Health. 298 pp. Price, \$1.00.
- Book VII—Helping the Body in Its Work. 314 pp. Price, \$1.04.
- Book VIII—The Healthy Home and Community. 339 pp. Price, \$1.08.
- SELECTED SOURCE MATERIAL IN INDUSTRIAL AND GENERAL RECREATION. . Annotated Articles, Inexpensive Materials, Books, Bibliographies, and Reference Magazines. By George W. Haniford, E. Patricia Haggman and Floyd R. Eastwood. Lafayette: Purdue University, 1944. 64 pp. Price, \$.50.
- INDUSTRIAL MEDICINE. SECOND INTERIM REPORT, JAN., 1945. Social and Preventive Medicine Committee. London: Royal College of Physicians, 1945. 24 pp.
- SOCIAL WORK YEAR BOOK, 1945. Edited by Russell H. Kurtz. New York: Russell Sage Foundation, 1945. 8th ed. 620 pp. Price, \$3.25.
- SOVIET CULTURE IN WARTIME. San Francisco: American Russian Institute, 1945. No. 3. 48 pp. Price, \$.25.
- STOP WORRYING AND GET WELL. By Edward Podolsky, M.D. New York: Bernard Ackerman, Inc., 1944. 124 pp. Price, \$2.00.
- THE STORY OF PENICILLIN. By Boris Sokoloff, M.D. New York: Ziff-Davis Publishing Co., 1945. 167 pp. Price, \$2.00.
- STUDIES OF BURNS AND SCALDS. Reports of the Burns Unit, Royal Infirmary, Glasgow, 1942-43. Medical Research Council Special Report Series No. 249. London: His Majesty's Stationery Office, 1944. 210 pp. Price, \$1.20.
- THE TECHNIQUE OF BANDAGING AND SPLINTING. Including Sections on Slings and Adhesive Plaster Strappings. By Major Arthur M. Tunick. New York: Essential Books, 1945. 206 pp., illus. Price, \$3.00.
- TRAUMA IN INTERNAL DISEASES. With Consideration of Experimental Pathology and Medicolegal Aspects. By Rudolf A. Stern, M.D. New York: Grune & Stratton, 1945. 575 pp. Price, \$6.75.
- TROPICAL MEDICINE. By Sir Leonard Rogers, M.D., and Sir John W. D. Megaw. 5th ed. Baltimore: Williams & Wilkins, 1944. 518 pp., illus. Price, \$6.50.
- WHAT DO THE AMERICAN PEOPLE THINK ABOUT FEDERAL HEALTH INSURANCE? Report of a National Public Opinion Survey of Civilian Adults Conducted in August, 1944. Denver: National Opinion Research Center, University of Denver, 1944. 66 pp.
- WOMAN'S MEDICAL PROBLEMS. By Maxine Davis. New York: McGraw-Hill, 1945. 220 pp. Price, \$2.00.
- YELLOW MAGIC. THE STORY OF PENICILLIN. By J. D. Radcliff. New York: Random House, 1945. 173 pp. Price, \$2.00.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Blot in Public Health's Escutcheon—During the first four weeks of the year, 1,384 cases of diphtheria were reported. This number is above the 5 year median, and increases over the preceding year occurred in all sections of the country except the East North Central region.

ANON. Prevalence of Communicable Diseases in the United States. Pub. Health Rep. 60, 8:201 (Feb. 23), 1945.

As Important as Bullets—Fighting as we are in every disease-ridden corner of the earth, knowledge of the medical hazards that exist and the local resources available to help meet them becomes a military "first." This story of the varied sources from which come all the minutiae of information will open the eyes of the reader.

ANDERSON, G. W. Medical Intelligence in the United States Army. Canad. Pub. Health J. 36, 2:65, 1945.

Quote—The possibility of utilizing the public lavatory for dissemination of information concerning other diseases (than venereal), particularly gastrointestinal diseases, should not be overlooked. **Unquote.** Three-quarters of the patients who came voluntarily to a V.D. clinic said they came because they had read about it in a lavatory poster.

CARPENTER, C. M., and WINCHESTER, M. E. Evaluation of Lavatory Posters in a Program for the Control of Venereal Disease. Ven. Dis. Educ. 31 (Feb. 1), 1945.

From Miasms to Emic—Stories about some of the great men who made the Massachusetts Board—and Depart-

ment—of Health famous are told by a man who knew most of them.

CHAMPION, M. E. Seventy-five Years of Public Health in Massachusetts. New England J. Med. 232, 9:241 (Mar. 1), 1945.

Aerobiology—Twelve papers on air-borne infections reflect substantial gains toward a practical art of air sanitation by means of ultra-violet irradiation, germicidal vapors and dust suppressive measures. You'll need no further aid from this bibliography in deciding whether or not to study this series.

COMMISSION ON ACUTE RESPIRATORY DISEASES. Atypical Pneumonia (and eleven related papers). Am. J. M. Sc. 209, 1:55 (Jan.), 1945.

Whither TB?—Increased tuberculosis death rates in the industrialized states of our union cause certain alarm-viewers to assume that this means a rising national mortality rate. It may at that! But this able statistician warns that comparisons of death rates in states and communities have not the validity they once possessed, because the cream of healthy America is out of the country and the milling about of industrial workers is unprecedented.

DEMPEY, M. What Is Happening to the Tuberculosis Death Rate? Am. Rev. Tuberc. 50, 6:556 (Dec.), 1944.

Tale of Two Families—A four-person family enjoyed, in 5 years, 85 attacks of illnesses calling for 65 physician visits. Another, a seven-person family, had only 6 illnesses requiring 22 visits, during the same period. The story of these two families is essen-

tially a dramatization of the present-day No. 1A public health problem. There are twelve more papers so challenging that our rule of "items from periodicals only" is broken to bring them to your attention.

DOWNES, J. Findings of the Study of Chronic Diseases in the Eastern Health District of Baltimore. Volume 2. Proceedings 22nd Annual Conference. Milbank Mem. Fund, 1945.

From Medicine Show to Health Museum—Reporting on 4 years of experience in conducting the Cleveland Health Museum, the director makes an excellent case for health education by that type of agency. Please read.

GERHARD, B. Community Health Education by the Medical Profession. J.A.M.A. 127, 9:506 (Mar. 3), 1945.

Help for Military Surgeons—Mumps, which is no joke for a child, may become an outright tragedy if introduced in groups of adults. Mumps virus can be grown in the chick embryo which opens up the possibility of perfecting diagnostic skin test material and vaccine.

HABEL, K. Cultivation of Mumps Virus in the Developing Chick Embryo and Its Application to Studies of Immunity to Mumps in Man. Pub. Health Rep. 60, 8:201 (Feb. 23), 1945.

Answers for the Followers of Huxley, *et al.*—Eye exercises may do good: they may do harm too if they divert diseased eyes from ophthalmological treatment. They cannot help certain physical conditions but they may be potent in helping the psychic side of vision. A high degree of acumen is needed to steer a true course.

LANCASTER, W. B. Eye Exercises—Do They Do Any Good? Do They Do Any Harm? Their Limitations. Sight-Saving Rev. 14, 3:139 (Winter), 1944.

Symposium on Rheumatic Fever—Purpose: to focus attention on the

many problems in this field. Outcome: success.

MARTIN, A. T. Rheumatic Fever and the American Academy of Pediatrics—General Purpose and Scope (and ten related papers). J. Pediat. 26, 3:209 (Mar.), 1945.

Our Journal's Littlest Sister—Amateur researchers among us who invoke the aid of statistics to prove their assumptions should know of the pitfalls that await the unwary statistician. In Vol. 1, No. 1 of a publication dedicated to saving statisticians from their sins is a paper pointing out some of the pits into which other medical researchers have slid.

MINER, J. R. Some Uses of Statistical Methods in Medicine. Biometric Bull. 1, 1:3 (Feb.), 1945.

Page Martin Arrowsmith—Quite illogically, tests of the therapeutic value of phage against dysentery were made in man before being tried on experimental animals. They were not adequately controlled and were unconvincing. Now it has been shown experimentally that phage is effective against induced infections, so it is time for carefully planned tests on man.

MORTON, H. E., and ENGLEY, F. B. Dysentery Bacteriophage. J.A.M.A. 127, 10:584 (Mar. 10), 1945.

Taking the Wrath from the Grapes—Federally supported health and medical services for needy itinerant farm workers, provided by local practitioners, deserve—and are getting, in some states—the coöperation of local health agencies. Migrant farm labor will be a normal phenomenon in the future and will require an established administrative set-up.

MOTT, F. D., and ROEMER, M. I. A Federal Program of Public Health and Medical Services for Migratory Farm Workers. Pub. Health Rep. 60, 9:229 (Mar. 2), 1945.

Feeding the School Child—Novel, if not revolutionary is this approach

to the school lunch: concludes this writer, the question is not, "Can the students pay the full cost of the meal?" but rather "Under what kind of program do students eat the most nutritionally adequate meal?"

PENDERGAST, W. S. Detroit Typifies a Trend in School Feeding. *J. Am. Dietet. A.* 21, 2:73 (Feb.), 1945.

Airing Our Nutritional Ignorance—Neither the most satisfactory level of intake nor the optimal retention of any nutrient is known. Current efforts to plan national food policies and the interpretation of dietary surveys based on "standard requirements" may lead to serious error, concludes this Canadian critic.

PETT, L. B. Errors in Applying Nutrient Allowances to Dietary Surveys or Food Policies. *Canad. Pub. Health J.* 36, 2:69 (Feb.), 1945.

You'd Better Count Your Calories—Disconnected questions jotted down while reading a paper: Is the jump in old-age diseases due to over-nutrition? Is apparent correlation between cancer and overweight significant? Do animal experiments indicating underfeeding and forced exercise cut cancer incidence have any application for two-legged animals? Is there a nutrient factor which, in excess, permits carcinogenic agents and irritants to work their malign effect? Is there anything to this man's suggestion that eating no more than is needed and keeping physically fit may prevent cancer? Who knows?

POTTER, VAN R. The Rôle of Nutrition in

Cancer Prevention. *Science.* 101, 2614:105 (Feb. 2), 1945.

600,000 Pathologic Drinkers—If alcoholism is a concern of public health, and I cannot see how that assumption can be refuted, then it is imperative that you read this paper. One quotation: "What the Alcoholics Anonymous movement needs is a closer coöperation with the medical profession, and what the medical profession needs *even more* is a closer coöperation with Alcoholics Anonymous" (italics ours).

ROTMAN, D. B. Alcoholism. *J.A.M.A.* 127, 10:564 (Mar. 10), 1945.

The Great Darkness—You owe it to yourself to work your way through this highly technical discussion about our cancer ignorance and the means that are being currently employed to dispell it. If your mind is fuzzy, like mine, you won't get much out of one reading of the paper other than a profound respect for those who are groping their way in this dim-lit region.

SPENCER, R. R. The Problems of Cancer Biology. *J.A.M.A.* 127, 9:509 (Mar. 3), 1945.

More than TB Is Involved—Mass x-rays have established the fact that thoracic abnormalities and infections exist more commonly than was suspected. In the light of our present knowledge a chest x-ray should be given to every patient admitted to hospitals or clinics.

WILSON, N. J. The Early Diagnosis of Diseases of the Chest. *New England J. Med.* 232, 11:302 (Mar. 15), 1945.

ASSOCIATION NEWS

STATE HEALTH CONFERENCES—1945 PATTERN

The success of a series of state health meetings under the auspices of state public health associations during 1943 and 1944, which were attended by a team of speakers organized under the auspices of the American Public Health Association, has created a demand for similar meetings in 1945. This matter has been repeatedly considered at length by the Executive Board of the A.P.H.A. and the Executive Secretary has been directed to attempt to meet the manifest need for professional refresher courses within the limits on such meetings this year.

In spite of the fact that regular state meetings cannot be held for this purpose under the current orders of the Office of Defense Transportation, several of the western states have planned during May and June to have select conferences of persons who stand to gain most from such opportunities and so far as possible aim to bring new information and stimulation to public health workers in isolated places. These sessions have been planned under circumstances so that the rules of the ODT will be strictly observed and not more than fifty persons will travel by means of public conveyance or use hotel rooms. Around most of these centers a considerable number of other persons can find ways to attend without the use of public transportation.

As we go to press, nine meetings have been planned as follows: May 16, Chicago, Ill.; May 17, Springfield, Ill.; May 18, St. Louis, Mo.; May 19, Kansas City, Mo.; May 21, Topeka, Kans.; May 22, Wichita, Kans.; May

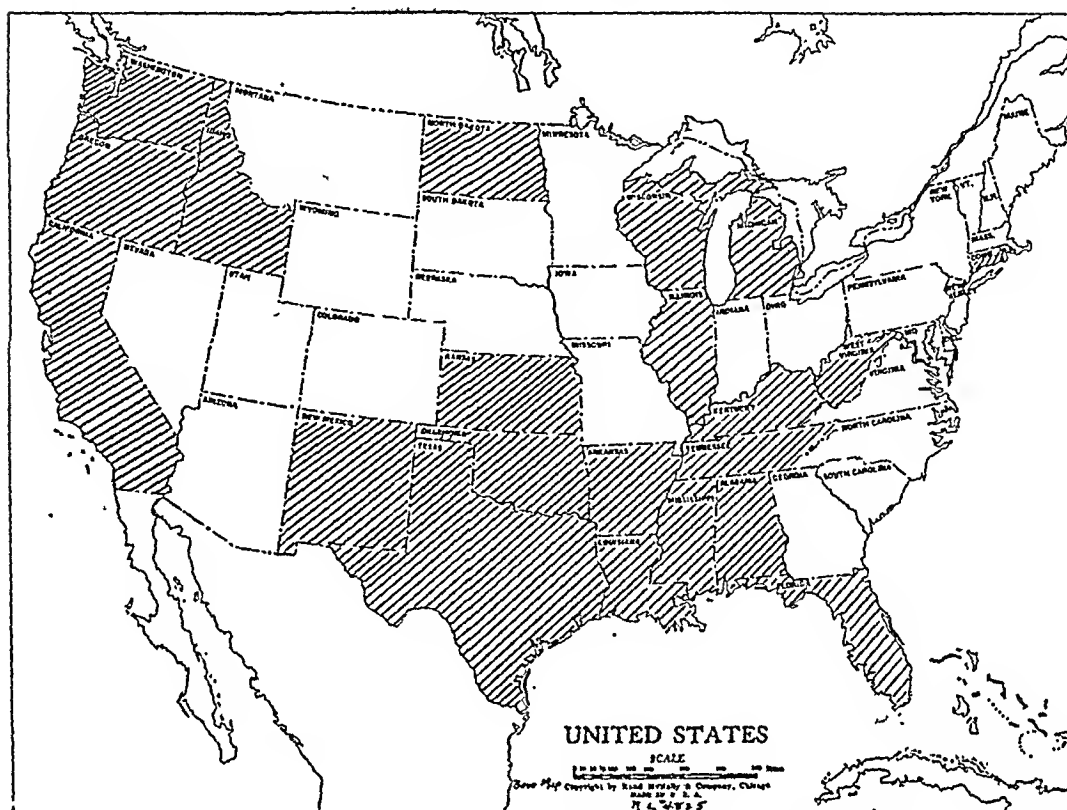
23-24, Denver, Colo.; May 28-29, Salt Lake City, Utah; May 31-June 1, Boise, Idaho.

In each case the meetings will be under the auspices of the respective state public health associations who will be responsible for all arrangements and the program. The traveling team will include for the first six meetings James G. Townsend, M.D., Director Industrial Hygiene Division, National Institute of Health, Bethesda, Md.; George M. Wheatley, M.D., Assistant Vice-President, Welfare, Metropolitan Life Insurance Company, New York; Frank Stafford, M.A., of the U. S. Office of Education, Washington; Ruth Fisher, R.N., Associate Director, National Organization for Public Health Nursing, New York; and Reginald M. Atwater, M.D., Executive Secretary, A.P.H.A.

The meetings in Colorado, Utah, and Boise will be attended by Dr. Townsend, Dr. Wheatley, and Dr. Atwater, and, in addition, by Karl F. Meyer, M.D., Director, Hooper Foundation, University of California, San Francisco; Fred T. Foard, M.D., District Director, U. S. Public Health Service, Denver; and Ruth Freeman, R.N., Director, Course in Public Health Nursing, University of Minnesota, Minneapolis.

It is desirable that persons living outside of the cities where these meetings are scheduled and who desire to attend should communicate with the respective secretaries of the state public health associations to confirm the dates and arrangements and to make sure that the quota of those who travel will not be exceeded.

INDICATED STATE HEALTH DEPARTMENT PARTICIPATION IN THE PROMOTION OF EVALUATION OF LOCAL HEALTH SERVICE



The development of a Reporting Area for Health Practices as described in the issues of the JOURNAL for October, 1944, and March, 1945, has enlisted the interest of 21 states at this writing (April 6). State health departments in the 21 states shown in the above map have indicated the desire to participate actively in encouraging the submission of *Evaluation Schedules* from local areas. Communities whose schedules contain adequate material, will be listed in the next annual edition of *Health Practice Indices*, as constituting the Reporting Area for Health Practices. Additional indicated participating areas are Hawaii, the Virgin Islands, a number of communities in the Canadian Provinces, and individual communities in states other than those shown on the map.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Desire D. L. Auger, M.D., D.P.H., St. Andre, Acton Vale, P. Q., Canada, Medical Officer, Health Unit of Bagot County
Roger Beauvilliers, M.D., D.P.H., Main St., Buckingham, Papineau, P. Q., Canada, Medical Officer of Health, Papineau County
Pierre-Paul Bouchard, M.D., D.P.H., Lama-baie, Comte Charlevoix, P. Q., Canada,

Medical Officer of Health, Health Unit
Francis T. Butts, Redding Road, Towaco, N. J., Health Officer, Board of Health, Montville Township
Francois Duvalier, M.D., Port-au-Prince, Haiti, West Indies, POB, A151, Chief of Gressier Yaws Training Center, American Sanitary Mission
Walter E. Handley, M.D., City Hall, Spring-

field, Mo., Commissioner of Health and Sanitation
 Elphege Jacques, M.D., D.P.H., Brome-Missisquoi Health Unit, Farnham, P. Q., Canada, Medical Officer of Health
 Richard A. Kelly, M.D., C.M., D.P.H., 137 Simcoe St., Peterborough, Ont., Canada, Medical Officer of Health
 Knud Knud-Hansen, M.D., Charlotte Amalie, St. Thomas, Virgin Islands, U. S., Commissioner of Health for The Virgin Islands
 Armand Laberge, M.D., D.P.H., Amos, Abitibi, P. Q., Canada, Medical Officer, Health Unit
 J. Flavius Leclerc, M.D., County Health Unit, St. Jerome County Terrebonne, P. Q., Canada, Health Officer
 Ward L. Oliver, M.D., County Health Dept., Morgantown, W. Va., Surgeon (R), U. S. Public Health Service; Director, Monongalia County Health Dept.
 Paul-Emile Rolland, M.D., D.P.H., New-Carlisle, Bonaventure County, P. Q., Canada, Medical Health Officer
 Lorenzo A. Turcotte, M.D., D.P.H., Lachute (Argenteuil), P. Q., Canada, Medical Officer of Health

Laboratory Section

Cpl. Henry Cachel, Clinical Laboratory Technician, General Hospital
 Robert A. Crombie, Laboratory Technician, Station Hospital
 Richard A. Elliott, 68 Park Ave., Hillsdale, N. J., Blood Plasma Technician, Lederle Laboratories, Inc.
 Nell F. Hollinger, Ph.D., 203 Medico Dental Bldg., San Jose 20, Calif., Serologist, San Jose Clinical Laboratories
 Edythe M. Kershaw, 149 E. 62nd St., New York, N. Y., Bacteriologist, Colosi Laboratories
 Kurt P. Lorenz, Ph.D., 114-57 172nd St., St. Albans 12, N. Y., Chemist and Bacteriologist, Buck, Seifert and Jost, Consulting Engineers
 Richard L. Overpeck, HA 2/C USNR, 2521 Hearst Ave., Berkeley 4, Calif., U. S. Naval Medical Research Unit 1
 Capt. John J. Payne, Sn.C., 820 Oakdale Ave., Chicago 14, Ill., Regional Hospital, Camp Maxey, Tex.
 T/Sgt. Ernest J. Russo, Laboratory Technician, General Hospital
 Rose Wirzikoski, 9 Ontario St., Toledo 2, Ohio, Acting Chief Bacteriologist, Toledo Health Dept.

Vital Statistics Section

Frederick W. Appel, Ph.D., 3450 38th St., N.W., Washington 16, D. C., Statistician,

Division of Nurse Education, U. S. Public Health Service
 Anne Baranovsky, 40 Wall St., Milbank Memorial Fund, New York 5, N. Y., Research Asst.
 Paul T. Bruyere, M.D., M.P.H., U.S.P.H.S., Bethesda Station, Washington, D. C., Statistician, Venereal Disease Division
 Dorothy L. Kurtz, 620 W. 168th St., Presbyterian Hospital, New York 32, N. Y., Supervisor of Record Dept., Columbia-Presbyterian Medical Center
 Marion Lee, 1010 Pennsylvania Ave., S.E., Washington 3, D. C., Junior Statistician, U. S. Public Health Service
 Margaret P. Martin, Ph.D., 600 W. 168th St., New York 32, N. Y., Instructor in Biostatistics, DeLamar Institute of Public Health
 Jan van der Vate, A.M., P. O. Box 266, Vienna, Va., Head, Field Reporting Unit, Tuberculosis Control Division, U. S. Public Health Service

Engineering Section

J. Harold Bauer, 704 Cooledge Ave., N.E., Atlanta, Ga., Field Sanitary Engineer, War Food Administration
 John R. Cameron, M.P.H., Washtenaw County Health Dept., Ann Arbor, Mich., Public Health Engineer
 Clyde F. Herring, P. O. Box 2591, Birmingham 2, Ala., Sanitary Engineer and Director, Bureau of Sanitation, Jefferson County Board of Health
 Robert S. Hopson, M.S.P.H., City Health Dept., City Hall Annex, Richmond, Va., Senior Assistant Sanitarian (R), U. S. Public Health Service
 William A. Hoskisson, Ph.D., 122 State Capitol Bldg., Salt Lake City, Utah, Senior Sanitarian, State Board of Health
 James L. Quick, 1410 Roache, Indianapolis 8, Ind., Sanitary Engineer and Chief, Division of Plumbing and Sanitation, City of Indianapolis
 Forrest R. Walker, 1935 Covina Blvd., Baldwin Park, Los Angeles Co., Calif., Sanitarian, Dept. of Corrections
 Arnold M. Westling, Regional Hospital, LAAF, Lincoln 1, Nebr., Sanitary Engineer, AUS

Industrial Hygiene Section

Catherine Coleman, 963 E. Fourth St., Los Angeles 13, Calif., Chemist, Coca Cola Co.
 Kenneth E. Dowd, M.D., C.M., 890 Notre Dame St., W., Montreal, Que., Canada, Chief Medical Officer, Canadian National Railways
 Elsa L. Larson, R.N., 175 Berkeley St.,

Boston, Mass., Industrial Nursing Consultant, Liberty Mutual Insurance Co.
 Elaine Lazar, R.N., 2025 Broadway, New York 23, N. Y., Industrial Nurse, General Cable Corp.

Food and Nutrition Section

Engla J. Anderson, Beth Israel Hospital, 330 Brookline Ave., Boston 15, Mass., Chief Dietitian
 Roy E. Butler, M.D., UNRRA Greek Mission, Senior Surgeon, U. S. Public Health Service; Nutrition Consultant, Balkan Mission
 Julia E. Dearchs, 504 Rock Island Bank Bldg., Rock Island, Ill., Nutrition Director, Dairy Council of the Quad-cities
 David B. Hand, Ph.D., 14 Ridgecrest East, Searsdale, N. Y., Technical Director, Sheffield Farms Co., Inc.
 James T. Lowe, Ph.D., Nestle Milk Products Inc., 155 E. 44th St., New York, N. Y., Research Director

Maternal and Child Health Section

Selma K. Dritz, M.D., 218 S. Fourth St., Springfield, Ill., Pediatrician, Division of Maternal and Child Hygiene, State Dept. of Public Health
 Bernice G. Wedum, M.D., 4200 E. Ninth Ave., Denver 7, Colo., School Physician, Denver Public Schools

Public Health Education Section

Walter W. Argow, Ed.D., 3046 Jolly Road, Jacksonville, Fla., Public Health Representative, Venereal Disease Division, U. S. Public Health Service
 Bernardine Cervinski, Stockwell Hall, Univ. of Michigan, Ann Arbor, Mich., Asst. Director of Health Education, North Dakota Public Health Dept.
 Mabel R. Faga, R.N., 719 Hamilton St., Allentown, Pa., Exec. Secy., Lehigh County Tuberculosis and Health Society
 Laura Chase Farley, M.S., 1219 Fulton St., Brooklyn, N. Y., Exec. Secy., Bedford District Health Committee
 Sophie Fevold, R.N., 101 W. 3rd St., Municipal Bldg., Dayton, Ohio, Asst. Director, Visiting Nurse Assn.
 Katharine E. Fitzgerald, 31 Harbor View St., Dorchester, Mass., Health Education Coordinator, Boston Health Dept.
 Helen S. Frankel, M.S., 1140 Anderson Ave., New York, N. Y., Exec. Secy., Lower West Side District Health Committee, Neighborhood Health Development
 Harold T. Frierhood, M.S., 347 Madison

Ave., New York 17, N. Y., Senior Secy. for Health and Physical Education, National Council, Y.M.C.A.

Helen M. Gosling, M.S. in N., 117 W. Main St., Troy, Ohio, Exec. Secy. and Health Educator, Miami County Tuberculosis and Health Assn.

William J. F. Graham, R.N., 1012 Webster, Bakersfield, Calif.

Agnes M. Holdridge, 114½ Egan Ave., N., Madison, S. D., Exec. Secy., South Dakota Tuberculosis Assn.

John W. Lewis, M.D., 2501 19th St., N., Birmingham, Ala., Medical Director, Sloss-field Health Center, Jefferson County Board of Health

Lanning E. Likes, M.D., Likes Clinic, Lamar, Colo., Member, Colorado State Board of Health

Edith R. Lindly, M.S., 230 N. Duncan, Stillwater, Okla., Student, Univ. of Michigan, School of Public Health

Whitelaw Reid Morrison, M.D., Oberlin College, Oberlin, Ohio, Professor of Hygiene and Physical Education

Lola M. Muse, M.A., 114 W. 16th St., New York, N. Y., Asst. Research Statistician, New York Heart Assn.

Public Health Nursing Section

Claris E. Armstrong, R.N., 125 W. 131st St., New York, N. Y., Student, New York Univ.

Beatrice E. Benson, R.N., 110 Stonelea Place, New Rochelle, N. Y.

Mae N. Burford, R.N., Potosi, Mo., Staff Nurse, State Board of Health

Freda L. Goad, R.N., 1919 7th St., Bedford, Ind., Lawrence County Public Health Nurse

Ruanna Gordon, Municipal Bldg., 101 W. 3rd, Dayton, Ohio, Director, Visiting Nurse Assn.

Elna L. Graff, Middlebourne, W. Va., Public Health Nurse, State Health Dept.

Mary Elizabeth Hawk, RFD 2, Box 50, Concord, Calif., School Nurse, Mt. Diablo Union High School

Marion L. Jacobs, R.N., Health Center, Room 316, Yonkers 2, N. Y., Exec. Director, Yonkers Visiting Nursing Assn.

Evelyn E. Johnson, R.N., 930 Sixth St., LaSalle, Ill., Asst. Public Health Nursing Consultant, U. S. Public Health Service

Verle B. Lesnan, R.N., 326 East South Temple, Salt Lake City 2, Utah, Industrial Nursing Consultant, State Health Dept.

Hazel I. Lycan, 904½ N. Jackson, Wilmington 27, Del., Supervisor, County Health Unit

Mary Merner, RFD 1, Westport, Conn., Staff Nurse, Visiting Nurse Assn. of Bridgeport, Inc.

Hazel M. Peterson-Schmidt, 228 Napa Rd., Vallejo, Calif., Supervisor of Nurses, Vallejo-Solano County Health Dept.

Carol B. Raile, 191 S. 3 W., Provo, Utah, Public Health Nurse, State Dept. of Health
Maude M. Ramsey, R.N., 215 S. 3rd, Watseka, Ill., County Tuberculosis Nurse, Iroquois County Tuberculosis Sanatorium Board

Cosma B. Rinehart, R.N., 228 Napa Road, Vallejo, Calif., Staff Nurse, Vallejo-Solano County Health Dept.

Minnie E. Thorne, R.N., No. 1, Box 19, Elm City, N. C., Senior Staff Nurse, Hartford County Health Dept.

School Health Section

B. Irene Bradley Barrett, M.D., 4525 Maple Ave., Bethesda, Md., Director, Health and Physical Fitness, Montgomery County Public Schools

Grace D. Keenan, School Dept., Brockton, Mass., Supervisor of Health Education

Mary L. MacDermott, 789 St. Marks Ave., Brooklyn 13, N. Y., Acting Supervising Public Health Nurse, New York City Health Dept.

Florence K. Parker, 16 Rockwell Terrace, Malden, Mass., Instructor of Health and Physiology, Beebe Junior High School

Ann C. Reilly, R.N., 266 Washington Ave., Brooklyn 5, N. Y., Acting Supervising Nurse, New York City Dept. of Health.

George W. Snyder, M.D., City Hall, Court House, St. Paul 2, Minn., Director of School Hygiene, Dept. of Education

Epidemiology Section

David Beaulieu, M.D., D.P.H., 89 Notre-Dame E., Montreal, Que., Canada, Director, Venereal Disease Control Division

Lt. Harold W. Bischoff (MC) USNR, 1327 34th Ave., San Francisco, Calif., Research Bacteriologist, U. S. N. Medical Research Unit 1

Andres P. H. Degoy, M.D., Colon 566, Cordoba, Argentina, S. A., Recently in public health work

John C. Hume, M.D., 1548 Virginia St., E., Charleston, W. Va., P. A. Surgeon (R), U. S. Public Health Service; Acting Director, Bureau of Venereal Disease Control, State Health Dept.

Siegfried Klinger, M.D., Sosua, Puerto Plata, R. D., Director of Medical Dept., Dominican Republic Settlement Assn.

Kenneth H. McGill, 21st and C Sts., N.W.,

Washington 25, D. C., National Headquarters, Selective Service System

Tomas de Villafane, M.D., Rosario de Santa Fe 343, Cordoba, Argentina, S. A., Recently in public health work

Dental Health Section

Margaret A. Bailey, Temple Dental School, 18th & Buttonwood St., Philadelphia, Pa., Supervisor, Oral Hygiene Dept.

Unaffiliated.

Charles A. Bertrand, 11 E. 10th St., Brooklyn, N. Y., Medical Student, Long Island College of Medicine

Floyd H. Emery, 111 Humboldt St., Rochester 9, N. Y., Sales Manager, The Anstice Co., Inc.

Martha Luginbuhl, 164 Lexington Ave., New York 16, N. Y., Research Asst., Subcommittee on Local Health Units, A.P.H.A.

Eunice M. Moore, Ph.D., 2500 S. Dearborn St., Chicago 16, Ill., Research Chemist, Bauer and Black

Charles A. Siler, M.D., 1140 Lake St., Oak Park, Ill., Commissioner of Health

CLOSING DATE FOR ACCEPTING FELLOWSHIP APPLICATIONS FOR 1945 ELECTION

The Administrative Office has already announced through the A.P.H.A. *Newsletter* that the annual election of Fellows, Life Members, and Affiliated Societies will take place this fall, although the present forecast is for no Annual Meeting in 1945. The closing date for accepting Fellowship applications for 1945 election will be August 1, and members interested in applying for such affiliations are urged to submit their applications as much in advance of this date as possible.

PUBLIC HEALTH EDUCATION SECTION

The officers of the Section regret the omission of the following Committee of the Section from the Committee List as it was published in the April *Journal* (page 404):

Committee on Health Education in Hospitals, Out-Patient Departments and Clinics

W. W. Bauer, M.D., *Chairman*

Bruno Gebhard, M.D.

Henriette Strauss

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York 19, N. Y.

POSITIONS AVAILABLE

(Supplemental to lists in recent Journals)

Wanted: Physician to plan, construct, and operate small pioneer community health center in western North Carolina, in cooperation with school and community center. Apply Box F, Employment Service, A.P.H.A.

Wanted: Bacteriologist with equivalent rating of junior grade, A.B. or B.S. degree and at least 1 year's experience in public health laboratory to work in county laboratory acting in capacity of state branch laboratory. Permanent position, salary \$150 per month. Apply Health Department, P. O. Box 151, Arlington, Va.

Eastern city Tuberculosis and Health Association seeks woman for health education secretary with training and experience in modern methods of organizing and conducting health education among adult groups including Negro and labor in county of about 175,000, equally divided between urban and rural. Office is located in capital of state which is a large business center. Good salary and allowance for auto expenses. State age, training, positions held, and give references. Apply Box T, Employment Service, A.P.H.A.

Wanted: Medical technologists for 550 bed approved California hospital. Give full particulars and state salary desired. Address N. N. Rilcoff, M.D., Medical Director, Kern General Hospital, Bakersfield, Calif.

Wanted: (Immediately) Veterinarian for Columbia Co. Dept. of Health. Salary \$2,500 per year plus automobile and upkeep. Veterinarian must be licensed in New York State. Position for duration of war. Address Dr. Sue Thompson, 612 Warren St., Hudson, N. Y.

Wanted: Epidemiologist who will also serve as registrar of vital statistics. Epidemiological services involve investigations of outbreaks of disease and compilation of medical, morbidity and mortality statistics. Applicant must be

qualified M.D. Salary \$3,600. Apply Box G, Employment Service, A.P.H.A.

Wanted: (By June 1, 1945) For Columbia Co. Dept. of Health. Sanitarian. Salary \$2,100 per year. Automobile and up-keep supplied by the Department. Permanent position. Address Dr. Sue Thompson, 612 Warren St., Hudson, N. Y.

Wanted: Physician to make physical examinations and supervise preemployment medical procedures for large industrial establishment in South. Regular day hours, duties not arduous. Particularly suitable for physician retired from USPHS, Army, Navy, or private practice because of partial disability or age. Salary attractive. Write full details to Box K, Employment Service, A.P.H.A.

Wanted: Man of good habits, between 30 and 50 years of age, for permanent position to take charge of rodent control section of large pest control organization. Must be familiar with typhus control, including general knowledge of building construction and some practical experience in rat-proofing and rodent control. Give educational background and employment experience for past 10 years. Include small photograph. Salary to start \$6,000 per year. Write Box P, Employment Service, A.P.H.A.

Several vacancies in the position of district and county health officers exist in Illinois. Salary range \$3,900 to \$4,800 per annum, plus travel allowance. Write Roland R. Cross, M.D., Director Illinois Department of Public Health, Springfield, Ill.

Wanted: Staff nurses for 250-bed municipal tuberculosis hospital. Salary \$210 per month, \$35 per month deducted if maintenance desired. Educational program with opportunity for postgraduate work with university credit. For full information write Superintendent of Nurses, Firland Sanatorium, Richmond Highlands, Washington.

POSITIONS WANTED

Bacteriologist-immunologist, man, age 44, 25 years' experience medical bacteriology and immunology. Steady, hard worker. Best references. Teaching and public health experience. Desires warm climate. L-475

Pathologist, Diplomate of American Board, Director of Laboratories and Research, Consultant Federal and State Health Agencies and Professor of Public Health. Excellent references. L-472

Advertisement

Opportunities Available

WANTED—(a) Pediatrician to direct division of maternal and child welfare; duties include conducting pre-natal and well child clinics; woman eligible; new program; health resort town of 100,000; Southwest. (b) Student health physician; state university, well equipped department and hospital, giving complete medical coverage to all students; Hygiene; Middle West. (c) Public health physician; duties consist of conducting public health program via boat service among natives in southeastern Alaska; boat equipped with x-ray, clinical laboratories; \$5,700-\$6,000. (d) Woman physician for appointment as resident physician and professor of hygiene; women's college having approximately four hundred students; duties include responsibility of medical care of students and faculty; East. (e) Assistant health officer to direct the maternal and child health department; man or woman with pediatric or public health training preferred; considerable traveling; Pacific Coast. (f) Public health physician; municipal department of health; generalized program; work includes well baby clinics, maternity centers, pre-school clinics and venereal work for the indigent; woman eligible; college town of 100,000; Middle West. (g) Woman physician to take over duties of assistant health director, student health department, co-educational college; should be qualified to succeed director should he join armed forces; young woman interested in student health career preferred. PH15-1

WANTED—(a) Dentist to engage in part-time work and part-time private practice; duties consist of five mornings each week working principally with school children although some work with pre-natal and venereal disease clinics; excellent opportunity for private practice; college town 40,000. (b) Public health dentist; state department of health; Middle

West. (c) Dentist to become associated with student health department; co-educational college; South. PH15-2

WANTED—(a) Health educator or social worker to direct department of health, industrial company having two plants approximately 1,700 employees; would serve as liaison officer between officials of company and employees; interesting post-war plan; Chicago. (b) Public health nurse to direct generalized public health program residential town not far from District of Columbia; around \$3,000. (c) Several staff nurses recently inaugurated public health program, Alaska; salaries start at \$225 if assigned to the interior, \$215 for urban appointments. (d) Public health nurse to direct visiting nurse association, preferably someone qualified to organize program; town of 10,000; Middle West. (e) Health educator for important position with tuberculosis organization; Pacific Coast. (f) School nurse; boys' academy; enrollment of 200; East. (g) Public health nurse to do tuberculosis nursing with county health department; should be experienced in tuberculosis work from sanitarium and field standpoints; city of 100,000; Southwest. (h) College nurse; young woman; college student enrollment about a thousand; town of 12,000; South. PH15-3

WANTED—(a) Bacteriologist; public health appointment; duties administrative including considerable research; \$3,300; East. (b) Bacteriologists, clinical laboratory, technicians qualified in x-ray and laboratory work; experience in public health laboratory procedures desirable; Alaska. (c) Medical technologist to take charge of blood bank; winter resort town; Florida. PH15-4 Medical Bureau, Burnice Larson, Director, Palmolive Building, Chicago 11, Ill.

Situations Wanted

Public health physician is available for administrative appointment; Ph.B. degree and degree of doctor of medicine eastern university; M.S. degree in Public Health Medicine; five years' experience in public health work which has been largely administrative. For further information, please write Burnice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11, Ill.

DENTIST—about to receive his honorable discharge is available; four years with the armed forces, including twenty-eight months overseas; before entering service conducted successful practice in small community; has done considerable oral surgery in private practice and in the Army; latter experience has included care of war-incurred injuries; B.S., D.D.S. from state university; for further information, please write Burnice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11, Ill.

BACTERIOLOGIST—is available for public health appointment; A.B., M.A., Ph.D. degrees; several

years' successful teaching and research experience in general, dairy and food bacteriology; past several years, director, bacteriological department, metropolitan department of public health; for further information, please write Burnice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11, Ill.

HEALTH EDUCATION—B.S., M.A. degrees; four years, public health nurse and dental health consultant; past four years, director of health education county health department; for further information, please write Burnice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11, Ill.

PUBLIC HEALTH NURSE is available for executive position in public health nursing; A.B., M.P.H. degrees, state university; professionally trained in teaching hospital; record of successful experience in public health nursing; for further information, please write Burnice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11, Ill.

NEWS FROM THE FIELD

DENTAL SERVICE IN LOCAL HEALTH UNITS

Inspired by the interest in the work of the Subcommittee on Local Health Units, as indicated in the general acceptance of its principles by state health officers, the American Association of Public Health Dentists last summer considered the problem of dental service in local health units.

In the July, 1944, issue of its *Quarterly Bulletin*, are varied answers to a question sent to members by the Editor in accordance with the practice of submitting a question of interest to the general membership before each issue of the *Bulletin*.

The question was: What dental personnel would you suggest for

- I. A public health unit of 50,000 population for
 - a. An educational program.
 - b. An educational and reparative program.
- II. For each single or multiple health unit of 150,000 for
 - a. An educational program.
 - b. A reparative and educational program.

As might be expected, no unanimity of opinion was expressed by the representatives from various parts of the country. What is significant, however, is that there is a recognition of the place of dental service in a public health program, and a recognition of the service that can be rendered by dental hygienists in a dental health education program.

For an educational program in a unit of 50,000 population, the suggestions for a dental health education program range from a public health educator to one full-time dentist and three dental hygienists; for an educational and reparative program for the same size

unit, suggestions vary from the use of part-time clinician dentists and contract service to four dentists and four dental hygienists. Not all those who answered the questionnaire suggest the use of dental hygienists.

For units of 150,000 the most frequent suggestion for an educational program is for one full-time dentist; however, one state dental health officer suggests one health educator and one dental health educator with dental hygienist training; and one suggests one dentist and nine dental hygienists; for an educational and reparative program the suggestions range from one full-time and two part-time dentists to 6 to 25 dentists and nine dental hygienists.

It is evident that there is less unanimity of opinion as to the ratio of public health dental personnel to population than, for example, in the fields of public health nursing, sanitation, or clerical services. This is due in part to the fact that dentists have reached no general agreement as to minimum functions of public health dental service at the local level. Should the program limit itself to dental health education? If a reparative program as well is to be done, should it include all school children, or all preschool and school, or only those of the indigent and borderline fraction of the population, or should it include all indigent and borderline population groups including adults? What part can trained dental hygienists play in an educational program? Once these questions are answered, experiments in ratios of dental personnel per unit of population can be undertaken with profit.

A SALUTE TO THE C.A.P.

The year 1945 marks the completion of a quarter-century of activity by the Committee on Administrative Practice of the A.P.H.A. The beginning of its second quarter-century finds the committee's work expanding in many new directions but with its objective unchanged—the improvement and expansion of public health services to reach all the people.

New developments in the programs carried on by seven subcommittees and numerous study groups have been reported in the *Journal* in the past year, and include:

Multiple Antigens for Active Immunization
Vol. 34, p. 452 (May), 1944.

Medical Care in a National Health Program
Vol. 34, p. 1252 (Dec.), 1944.

Next Steps in the Appraisal of Public Health Work
Vol. 35, p. 8 (Jan.), 1945.

Accident Prevention—An Essential Public Health Service
Vol. 35, p. 216 (Mar.), 1945

Announcement of a Plan for Developing a Reporting Area for Health Practices
Vol. 35, p. 287 (Mar.), 1945.

In addition to these recently reported activities, a new edition of *Health Practice Indices* will be published during this year, and *Local Health Units for the Nation* published by The Commonwealth Fund will be off the press shortly. *Indicated State Health Department Participation in the Promotion of Evaluation of Local Health Service* is shown on a map on page 537 of this issue. Last year evaluation schedules were received and graded for 178 communities in 33 states and 4 provinces of Canada. Schedules for 1944 are now being received.

Detailed studies of public health administration in selected states and shorter studies of health facilities in local areas, conducted by the field staff, continue to be one of the committee's chief functions.

E.M.I.C. AIDS 750,000

Dr. Martha M. Eliot, Associate Chief of the Children's Bureau, Washington, announced recently that about 750,000 wives and infants of service men have received care under the emergency maternity program that was authorized in 1943 by Congress. In addition to the half-million babies already served, almost 200,000 are currently on the list to receive medical, hospital, and nursing care. The cost of the service has reached nearly \$70,000,000, with the federal government paying doctor and hospital bills for about one baby in six born. Dr. Eliot emphasized the fact that the program is a war measure only and that it will terminate six months after the end of the war. According to Dr. Eliot, there is evidence of the gratitude and satisfaction of the combat troops that their wives and babies are being cared for. She paid tribute to the coöperation of thousands of physicians and hospitals that have helped to make the program a success. She stated that with few exceptions the program is now operating smoothly in coöperation with state health departments. Those eligible are the wives and infants of men in the four lowest pay grades of the Army, Navy, Coast Guard, and Marine Corps and wives and infants of aviation cadets.

BORDER HEALTH CONFERENCE

The U. S.-Mexico Border Public Health Association will hold its third Border Health Conference in El Paso, Tex., and Cd. Juárez, Chih., Mexico, on May 14, 15, and 16.

INSTITUTE FOR SUPERVISORS IN PUBLIC HEALTH NURSING

The Department of Nursing Education, The University of Chicago, is offering an Institute for Supervisors in Public Health Nursing June 4 to 9 inclusive. This Institute is planned for the nurse who must meet super-

visory responsibilities for which she has not had adequate preparation. There will be no registration fee; instructional costs will be met from federal funds. Maintenance at the rate of \$4 a day will be provided for those who do not live in the immediate vicinity. For further information write Nursing Education, The University of Chicago, 5733 University Avenue, Chicago 37, Ill.

SAFETY FILM AWARDS

Annually "Oscars" are awarded by the Motion Picture Committee, sponsored by the National Safety Council to producers of outstanding movies on accident prevention. One member of this committee represents the American Public Health Association. There are four classifications: Industrial, Traffic, Home, and General. The following comments of the Association's representative, H. E. Kleinschmidt, M.D., will interest health workers concerned with accident prevention and educational movies.

About 50 new films, most of them intended for non-theatrical use, were entered. Although some of them may not be rated better than mediocre, the quality of most was far better than those submitted in previous years—which is a hopeful sign. A few were so superior as to challenge the producers of health movies to greater effort. The great majority of these films deal with industrial hazards, some highly specialized and covering a wide variety of occupations from horse-shoeing to airplane station maintenance. Three are instruction films for railroad workers. Films produced by the United States Navy are particularly good in workmanship. While most of the films viewed are of the training type, some of them should be valuable also as promotional films, that is, suitable for a rousing interest in safety generally. An excellent example is one designed to teach telephone line-

men the art of pole climbing, which, in clever hands, might well be shown to audiences of any kind because the safety *principles* taught by this film apply equally to nearly all occupations and sports. There were only two entrants each in the "traffic" and "home" classifications—a hint to enterprising health workers that these fields are still wide open.

Eight motion pictures and two sound film strips won "Safety Oscars" for contributing most to safety in 1944.

The highest award for a theatrical motion picture in the field of occupational safety went to "Safety Sleuth"—a Pete Smith specialty produced by Metro-Goldwyn-Mayer.

Other awards in the occupational safety field:

"To Live in Darkness," produced by the U. S. Navy, won first prize as the best non-theatrical motion picture.

"The Art of Climbing," produced by the New Jersey Bell Telephone Company, won special honorable mention for the best motion picture produced for training purposes and emphasizing safety.

"Why Risk Your Life?" produced by the Great Northern Railway Company, won special honorable mention as the best safety education motion picture for railroad employees.

"Ring Down the Curtain," produced by the Michigan Bell Telephone Company, won first prize as the best sound film strip in the occupational field.

In the field of home safety, the award went to "What Price Happiness?" a motion picture produced by the Newark, N. J., Safety Council.

In the traffic safety field, the award went to "X Marks the Spot," a motion picture produced by the New Jersey Department of Motor Vehicles. This picture was praised by the committee as an "extraordinarily fine picture in every respect."

In the field of general safety, "Ice

Rescue," a motion picture produced by the Boy Scouts of America, won the award as the best non-theatrical film, while honorable mention went to "A Stitch in Time," a motion picture on farm safety produced by the Sears Roebuck Foundation.

In the same field of general safety, the award for the best sound film strip went to "Man-handled," produced by the Zurich Insurance Companies.

GENERAL FEDERATION OF WOMEN'S CLUBS HOLDS WASHINGTON INSTITUTE

During the last week of March the state health chairmen of the General Federation of Women's Clubs were invited to attend a week's institute at the National Institute of Health, Bethesda, at the invitation of Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service. Mrs. Marjorie B. Illig, of Wareham, Mass., National Health Chairman of the Federation, brought the state chairmen together for serious study of what modern public health work is and of ways in which the clubs making up the General Federation may contribute their full part. The institute was under the direction of Mayhew Derryberry, Ph.D., Chief of Field Activities in Health Education for the Public Health Service. Various staff members of the Service addressed the institute. Lucy Morgan, Ph.D., of the University of North Carolina, Helen Martikainen, M.P.H., also of the University of North Carolina, together with other state directors of health education, participated in the conference. Reginald M. Atwater, M.D., Executive Secretary of the American Public Health Association, presented an outline of the short evaluation schedule for local health service which has been planned by Mrs. Illig in coöperation with the Committee on Administrative Practice of the A.P.H.A. Dr. Atwater called the attention of the state chair-

men to the forthcoming volume, *Health Units for the Nation*, shortly to be published by the Commonwealth Fund in coöperation with the Subcommittee on Local Health Units of the Association, of which Haven Emerson, M.D., of New York, N. Y., is Chairman.

DETROIT AUW-CIO HEALTH INSTITUTE

The National C.I.O. War Relief Committee through its Community Services *News Letter* describes the opening of the UAW Health Institute in Detroit which has been set up in the recently purchased former home of Edsel Ford. The Institute now includes a medical library, a large x-ray department, a laboratory and facilities for basic metabolism and electrocardiogram tests. The services offered workers through the UAW Institute include examinations for individuals, group examinations to aid in identification and prevention of industrial health hazards, health education, personal counselling for individual workers, and the organization of health and safety committees of the plants. The Institute is said to have cost \$120,000 and to have an annual operating budget of \$40,000. It is under the direction of Dr. Morris Raskin.

OHIO CREATES TUBERCULOSIS DIVISION

The Ohio Public Health Council recently approved the establishment of a Division of Tuberculosis in the State Department of Health. The project was recommended by the Advisory Committee on Coördination of Tuberculosis Programs after a two year study. Another recommendation, now in the process of completion, was the conversion of the Ohio State Sanatorium for Incipient Pulmonary Tuberculosis into a hospital for institutionalized mental patients with tuberculosis. The State Department of Welfare has money, plans, and specifications for this project but is awaiting the removal of wartime

restrictions. Other recommendations in the report of the two year study urged the establishment of two new state institutions for the tuberculous and covered state subsidy to local tuberculosis institutions, both of which were embodied in bills introduced in the legislature, and urged the creation of diagnostic treatment centers in the state. Another recommendation asked that x-ray equipment be provided for each of the state institutions and routine chest examinations be made of all employees and patients in such institutions.

MISSISSIPPI PUBLIC HEALTH ASSOCIATION

At the recent meeting of the Mississippi Public Health Association in Jackson, the following were chosen officers of the Association:

President-elect — Archie L. Gray, M.D.,
Jackson
President — Cyrus M. Shipp, M.D., Bay St.
Louis
Secretary-treasurer — Hugh B. Cottrell, M.D.,
Jackson

COLORADO HOLDS RESTAURANT SANITATION SEMINAR

A Restaurant Sanitation Seminar was held in Denver, Colo., March 21-23, sponsored by the Colorado State Department of Health, the Denver City Health Department, and the U. S. Public Health Service, District No. 8. The seminar was conducted for state and local inspectors and sanitarians and was attended by a group representing many of the cities and counties in Colorado and Wyoming.

The program included: the history of food-borne disease outbreaks, the domestic animal as a source of food-borne disease, man as a source of food-borne disease, control of communicable disease, the legal aspects of food control, the Public Health Service restaurant sanitation program, etc.

Dr. George W. Stiles, Bacteriologist

in Charge, Branch Pathological Laboratory at Denver, U. S. Bureau of Animal Industry, spoke on the domestic animal as a source of disease in man. L. L. Warden, Chief Inspector, Denver Station of the U. S. Food and Drug Administration, spoke on the legal aspects of food control. Dr. Severance Burrage, Associate Professor Emeritus, Department of Bacteriology and Public Health, University of Colorado School of Medicine, gave a talk on food handler education. Major Harold Robinson of the U. S. Public Health Service led the discussion on the other subjects. The program was illustrated by movies and slides.

Seminar discussions were based on the 1943 edition of the *Ordinance and Code Regulating Eating and Drinking Establishments* recommended by the U. S. Public Health Service. Emphasis was placed on the importance of the educational approach to sanitation problems.

WASHINGTON ACADEMY OF SCIENCES AWARD TO DR. TOPPING

Among the awards for scientific achievement for the year 1944 as made recently by the Washington Academy of Sciences of the District of Columbia, the award for achievement in the biological sciences was given to Dr. Norman H. Topping of the National Institute of Health, Bethesda, Md. "In recognition of his distinguished service in identifying eastern and western types of Rocky Mountain Spotted Fever."

ARTHUR M. JOHNSON, M.D., RETIRES AS
HEALTH OFFICER OF ROCHESTER, N. Y.

A dinner in honor of Arthur M. Johnson, M.D., who has been Health Officer of Rochester, N. Y., since 1932, was given in his honor on March 31 at the time of his retirement. It was under the auspices of the Medical Society of Monroe County. Among the speakers

were Dr. Benjamin J. Slater of the Medical Society, Hon. Samuel B. Dicker, Mayor of Rochester, Dr. Alan Valentine, President of the University of Rochester, Dr. Edward S. Godfrey, Jr., State Commissioner of Health, Dr. Thomas Parran, Surgeon General, U. S. Public Health Service, and others representing the community.

DR. HEERING APPOINTED OHIO STATE DIRECTOR OF HEALTH

The appointment of Roger E. Heering, M.D., M.P.H., as Director of Health of the Ohio State Department of Health, Columbus, was announced in January by Governor Frank J. Lausche. The appointment is for a 5 year term. Dr. Heering who is a member of the regular Corps, U. S. Public Health Service, has been placed on leave in accordance with Public Law 410, Section 214. James E. Bauman, who has been Acting Director of Health, has been appointed Assistant Director.

CLEVELAND CELEBRATES PAN AMERICAN WEEK

Pan American-Week, beginning April 8, was marked in Cleveland, Ohio, by an event addressed by Mayor Thomas A. Burke and Clark H. Yeager, M.D., Chief of the Medical Division, Institute of Inter-American Affairs, Washington, under the subject "Tropical Diseases—Our Problem Too." The meeting was held at the Cleveland Health Museum and was under the auspices of the Cleveland Health Council, the Academy of Medicine of Cleveland, and the Cleveland Council on Inter-American Relations.

HEALTH OFFICERS ASSOCIATION CREATED IN MICHIGAN

Dr. Clarence D. Barrett of Mason, Mich., was elected President of the recently organized Michigan Health Officers Association, which was set up "to advance public health principles and

practices, to recommend standards of employment based on education, training, and experience, to make community health protection more complete and certain through study and conference with proper authorities and to strive for a good program for the retirement of health officers and staff members with pension, and to seek legislative enactment to this end." Other officers include Drs. Otto K. Engelke, Ann Arbor, Vice-President, and Vladimir K. Volk, Saginaw, Secretary-Treasurer.

PROPOSED MERGER OF HEALTH DEPART- MENTS IN WEST VIRGINIA

Merger of the Health Departments of the City of Charleston and Kanawha County has been recommended by Dr. Elias W. Langs, U. S. Public Health Service (R), who conducted a survey and made an exhaustive study of the matter early in the winter in coöperation with Dr. John E. Offner, Weston, W. Va., State Health Commissioner. The survey, which followed the recommendation of the State Medical Association's fact finding and planning committees that all city health departments be merged with the health department of the county in which the unit is located, was made with the full consent of city and county officials. In his report, Dr. Langs recommended that within two years after the merger, all affiliated health agencies, including the entire school health service, be consolidated with the unit, which would be under the direction of an experienced health officer. Administration would be under the supervision of a nonpartisan Board of Health.

SCHOOL HEALTH SURVEY IN KANSAS

The Kansas State Board of Health is sponsoring a state-wide school health study in coöperation with the State Department of Public Instruction and other state agencies interested in child

health, education, and welfare. Ground work was laid at a series of recent meetings at which Clair E. Turner, Dr.P.H., temporarily on leave from the Office of the Coordinator of Inter-American Affairs, Washington, D. C., as Health Education Officer, was in attendance.

CALIFORNIA HEALTH BOARD OBSERVES SEVENTY-FIFTH ANNIVERSARY

On April 15, the seventy-fifth anniversary of the organization of the California State Department of Public Health was observed. The department is the second to be established in the United States, the first being the Massachusetts Department of Public Health. According to *California's Health*, the official bulletin of the State Health Department, the transcontinental railroad was completed only a few months before the creation of the board, and the enactment of progressive legislation to establish the California State Board of Health at this early period is a noteworthy event.

PROPOSED PROGRAM TO COÖRDINATE HEALTH ACTIVITIES

The health panel of the Agricultural and Industrial Development Board of Georgia has submitted a program to co-ordinate health activities in the state and improve the efficiency of operation. The plan has the approval of the State Board of Health, the Georgia Hospital Association, and the Medical Association of Georgia, and it is hoped that the present legislature will endorse it. It has been recommended that the state be divided into nine districts, each to have a complete medical staff composed of administrator, epidemiologist, venereal disease control officer, tuberculosis control officer, and maternal and child hygiene control officer, to be solely responsible for the complete public health program in the district. In addition there would be one sanitary engineer in each office. The recom-

mendations carry certain provisions for the availability of nurses. Under the plan each County Board of Health would operate under its present powers. The health panel also suggests that the act of 1941, which gave each county the right to create a hospital authority, be made operative in every county, the hospital authority to be responsible for the construction and maintenance of hospitals, clinics and health centers. Certain recommendations have been made for the financial handling of the program, which has been described as definitely the development program for the post-war period in Georgia.

GOVERNOR OUTLINES HEALTH PROGRAM FOR INDIANA

Recently Governor Gates of Indiana outlined the legislative program of his administration for general expansion of the state's health service facilities, according to the *Indianapolis Times*. Among his recommendations was the reorganization of the State Board of Health, increasing its membership from four to seven to include three physicians, one dentist, one sanitary engineer, one pharmacist, and one woman who has "demonstrated interest in public health." The bill carrying this recommendation, now passed and signed by the Governor, includes a nurse and a veterinarian as members of the board, bringing the total to nine.

DR. COHN RECEIVES PASSANO FOUNDATION AWARD

Dr. Edwin J. Cohn, Professor of Biochemistry at the Harvard Medical School, Boston, was awarded the prize of the Passano Foundation at a ceremony in Baltimore on May 16. The Foundation, which was established in 1944 by the Williams & Wilkins Company of Baltimore, "proposes to aid in any way possible the advancement of medical research, especially research that bears promise of clinical applica-

tion." The award is \$5,000 in cash. The medical members of the committee included Dr. Emil Novak, Dr. Nicholson J. Eastman, both of Johns Hopkins University, and Dr. George W. Corner of the Carnegie Institution of Washington.

Dr. Cohn is known for his work on the fractionation of blood. Beginning in 1919 with a study of blood and blood proteins, Dr. Cohn's research has progressed until it has yielded a group of five principal fractions of blood plasma which hold promise of usefulness in medical science.

COL. IRA V. HISCOCK RECEIVES LEGION OF MERIT

Colonel Ira V. Hiscock, Officer in Charge of the Public Health Section, Economics and Relief Branch of the Civil Affairs Division, was presented the Legion of Merit on April 9, it has been announced by the War Department. The citation, in part, reads as follows:

"For exceptionally meritorious conduct in the performance of outstanding services from April, 1943, to February, 1945. As Officer in Charge of the Public Health Section, Economics and Relief Branch of the Civil Affairs Division, Colonel Hiscock with rare foresight and ability supervised all matters relating to health services, hospitals, medical services and sanitation pertaining to the civilian populations in liberated or occupied countries, and acted as liaison between the Office of the Surgeon General, and Civil Affairs Schools, and the School of Military Government at Charlottesville, Virginia.

"His advice to the Civil Affairs Division on all medical matters within its jurisdiction and to the G-5 Division of the Theaters of Operation and tactical command headquarters, together with the prompt action taken by him, prevented the serious consequences which might have resulted from the dangers of disease to which our troops were exposed."

Colonel Hiscock was placed upon inactive duty April 12 to become Chairman of the Department of Public Health at Yale University. He was Professor of Public Health in the School of Medicine at Yale prior to entering service.

NATIONAL ADVISORY CANCER COUNCIL PLANS EDUCATIONAL PROGRAM

Dr. Thomas Parran, Surgeon General of the U. S. Public Health Service and Chairman of the National Advisory Cancer Council, has reported that the need for immediate establishment of pilot courses in cancer for third and fourth year medical students has been recognized by the Council at its recent meeting. Definite emphasis according to Dr. Parran should be placed on early diagnosis of cancer which is now the second cause of death in the country. It was pointed out that the general practitioner is the first line of defense in cancer control and that courses in medical schools should be slanted toward making graduate medical students cancer conscious. It was agreed that long-range post-war planning of cancer research programs is necessary and that support for the program should be planned for from five to ten years instead of one year at a time.

The Council announced the approval of three grants-in-aid for cancer research, each of \$5,000 to Washington University School of Medicine, St. Louis, Mo., Bernard Free Skin and Cancer Hospital, St. Louis, Mo., and an additional grant for the Bernard Hospital for two years for the measurement of carcinogenicity of residual oils. Dr. R. R. Spencer is chief of the National Cancer Institute.

PERSONALS

Central States

ROLAND R. CROSS, M.D.,[†] of Springfield, Ill., Director of the Illinois Department of Public Health, has been named by Governor Green as Chairman of an Advisory Committee on Medical Services to serve with the

* Fellow A.P.H.A.

† Member A.P.H.A.

Governor's Committee on Veterans' Rehabilitation and Employment.

CLAY G. HUFF, Sc.D., Professor of Parasitology at the University of Chicago, has accepted an invitation from the Institute of Public Health and Tropical Diseases of Mexico City to visit that institution as guest investigator. Dr. Huff's trip was under the auspices of the U. S. Department of State.

WILLIAM M. LEFEVRE, M.D., has been appointed a member of the Muskegon Board of Health in Michigan to succeed the late Dr. SAMUEL A. JACKSON.

CHARLES A. SILER, M.D., a practising physician in Oak Park, Ill., since 1929 and formerly a medical missionary in China, has been appointed Health Commissioner of Oak Park, effective February 15. He succeeds Dr. GILBERT P. POND,† who resigned to accept a commission in the U. S. Navy.

Eastern States

GEORGE A. NEVITT, D.D.S., M.S.P.H., Dental Surgeon (R), USPHS, who has served for several years in District Office 2, Sub Treasury Building, N. Y., has been assigned by the Surgeon General as Dental Consultant to UNRRA with headquarters in London. Dr. Nevitt will replace Dr. FRANK C. CADY of the Public Health Service.

NATALE COLOSI, Ph.D.,* of New York City, has been appointed a member of the Interstate Sanitation Commission of New York, New Jersey, and Connecticut as recently announced by Governor Dewey. Dr. Colosi is Professor of Bacteriology and Public Health at Wagner College and Director of the Parkway Hospital.

GILBERT DALLDORF, M.D., who since 1929 has been Director of Laboratories of the Grasslands Hospital, Valhalla, N. Y., has been appointed

Director of the Division of Laboratories and Research in the New York State Department of Health, Albany, succeeding AUGUSTUS B. WADSWORTH, M.D.,* recently retired. Dr. Dalldorf, who is a native of Iowa, is a graduate in medicine of New York University.

BION R. EAST, DDS,* has been appointed Professor of Dentistry and Dean of the School of Dental and Oral Surgery at Columbia University. Dr. East has been assistant professor at the DeLamar Institute of Public Health, Columbia University, since 1940. Dr. East was a Lieutenant Colonel in the Dental Corps of the A.E.F. and has served with the U. S. Public Health Hospital No. 9 in Detroit.

HORTENSE HILBERT, R.N., New York, N. Y., has been appointed Director of the Bureau of Nursing of the New York City Department of Health, effective April 1. Miss Hilbert for three years has served as Associate Director of the National Organization for Public Health Nursing, New York, preceding which she was a regional public health nursing consultant of the U. S. Children's Bureau, Washington. Miss Hilbert's appointment fills a vacancy that has existed since August, 1943, by the retirement of Amy Grant, R.N.

ALBERT D. KAISER, M.D.,* of Rochester, N. Y., has retired from private practice of pediatrics to become City Health Officer of Rochester, N. Y., succeeding Dr. A. M. JOHNSON* who has retired after serving since 1932. Dr. Kaiser, who is a graduate in medicine of the Harvard Medical School, will develop the work of the City Health Department in connection with a new Department of Child Hygiene at the University of Rochester.

* Fellow A.P.H.A.

† Member A.P.H.A.

ANTHONY J. LANZA, M.D.,* who recently retired from the Army with the rank of Colonel in the Medical Corps, has received the award of the Legion of Merit for his share in the development of the health program of the Army for civilian workers while he was Chief of the Occupational Hygiene Branch of the Office of the Surgeon General.

MARION F. LOEW, M.D.,† who since 1936 has been Assistant Director of the Division of Maternity, Infancy and Child Hygiene, New York State Department of Health, Albany, has resigned to accept a position at the Samuel S. Fels Research Institute, Antioch College, Yellow Springs, Ohio.

Southern States

FRANCIS H. COLE, M.D., Director of the Tuberculosis Control Division of the Memphis and Shelby County Health Department, Tennessee, has been given a two year leave of absence. He will go to New York City for a postgraduate training course in thoracic surgery at Bellevue Hospital.

SIGMA V. LEWIS, M.D.,† has been appointed Director of the Burke-Caldwell District Health Department with offices in Lenoir, N. C.

WILBUR A. SAWYER, M.D.,* Director Emeritus of the International Health Division, Rockefeller Foundation and currently Medical Director, UNRRA, Washington, received recently the degree of Doctor of Laws at the Charter Day Exercises, University of California, Berkeley.

Western States

PERCY F. GUY, M.D.,† Seattle, Wash., who has served as Chief of the Maternal and Child Hygiene Division, Washington State Department of Health, has resigned to enter practice in Seattle, Wash., as of April 1.

WAYNE P. MCKEE, M.D., has been named Health Officer of Ferndale in Humboldt County, Calif., succeeding DR. HERBERT C. JAMES.

ALBERT F. ZIPF, M.D.,† Health Officer of Sacramento County, Calif., has taken over the activities of the Health Officer of Sacramento, DR. HERBERT F. TRUE,* who retired because of ill health.

Foreign

TOMAS DE VILLAFANE, M.D.,† and ANDRES P. H. DEGOY, M.D.,† both of Cordoba, Argentina, South America, have been touring the United States with special interest in tuberculosis and in brucellosis. They returned to Argentina in March.

SIR JOHN BOYD ORR,* according to *Science*, has tendered his resignation from the directorship of the Rowett Research Institute, Bucksburn, Aberdeenshire, Scotland, after holding that post since its foundation.

Deaths

CHARLES ROBERT BLAKE, M.D.,† for 34 years Health Officer of Richmond, Calif., and member of the honorary staff of the Richmond Hospital, died December 27, aged 76.

JESS W. HAIR, Director, Division of Public Health Education with the Louisiana State Department of Health since September, 1942, died suddenly recently.

EMIL ARNOLD SCHLAGETER, M.D., who was associated with the Chicago Health Department as a diagnostician and Supervising Health Officer for many years, died January 18, aged 61.

WILLIAM K. SKILLING, M.D., of Baltimore, Md., Director, Bureau of Child Hygiene, City Health Department, died November 20, aged 59.

* Fellow, A.P.H.A.

† Member, A.P.H.A.

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

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June, 1945

Number 6

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Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the Reader's Guide in your Library.

Published by the American Public Health Association at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription \$5.00 per year for United States, Cuba and Mexico, South and Central America; \$5.50 for Canada; and \$6.00 for other countries. Single copies 50 cents postpaid. Copyright, 1945, by American Public Health Association.

Address correspondence regarding editorial contents and manuscripts to the Managing Editor, Reginald M. Atwater, M.D., 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932.
Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

**PLEASE
RUSH...**

HANDLE CAREFULLY
(This box contains
BANANAS
for a sick child.)

LONG ISLAND DAILY PRESS, MONDAY, MARCH 13, 1944



BANANA BABY ONE YEAR OLD—"Wotta birthday!" says Ottilie M. Schmeltzer of 117-24 126th Street, South Ozone Park, New York, celebrating her first anniversary with a diet of bananas, just about the only food she has had since birth. Ottilie has a celiac condition and must have bananas to keep alive.



War or no war...

Celiac babies get bananas

Yes, all through the war celiac babies have been getting their needed quota of bananas.

At the request of the United Fruit Company, the banana jobbers of the country set aside a portion of their scant supplies to take care of the needs of celiacs and others for whom doctors prescribe bananas. Even during acute shortages, holders of certificates from physicians prescribing bananas were able to get them.

Ever since the discovery by the medical profession 20 years ago that the carbohydrates in the fully ripe banana are well tolerated and utilized by infants and children suffering from celiac disease*, bananas

have been prescribed by doctors as a definite part of the dietary regimen for celiac patients.

The banana contains adequate pectins and its fat content (.2%) is almost negligible. It also has a plus value from the nutritional standpoint because it is a good source of vitamins and minerals.

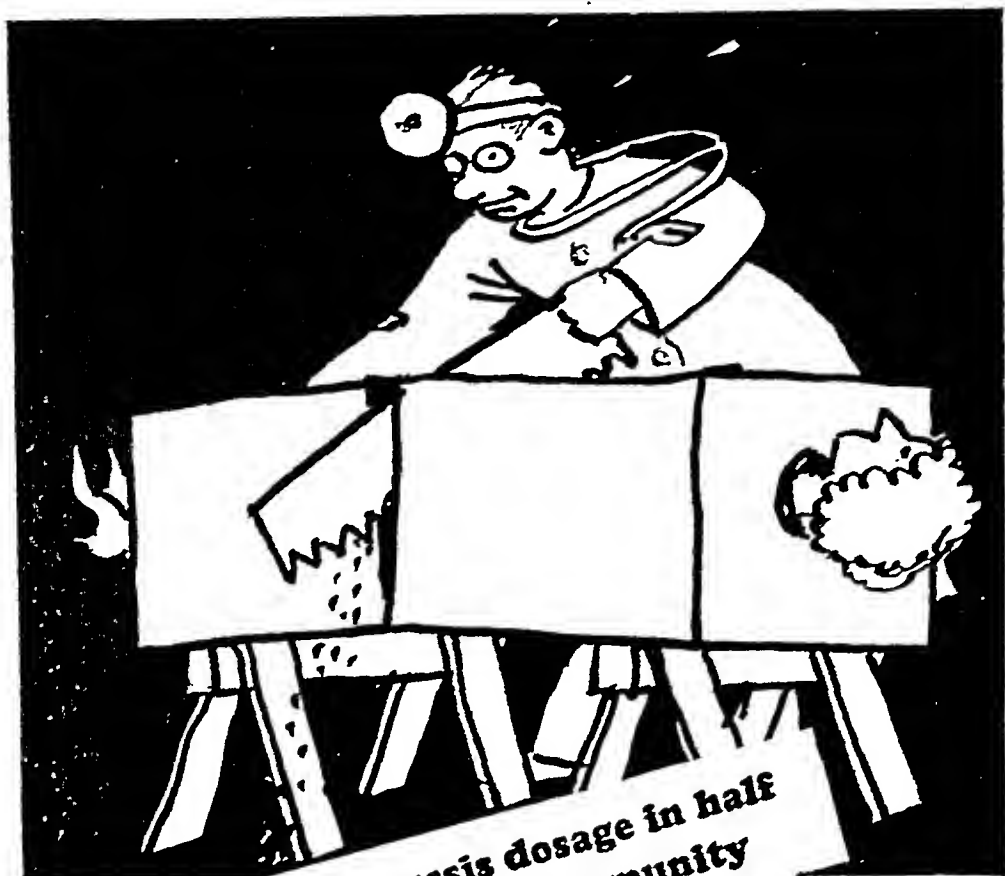
When the ships which carry bananas in peacetime return from their war service, there will be no need for doctors' certificates, and everyone who wishes bananas, even just because he likes them, will be able to have them.

*A form of chronic intestinal indigestion, usually occurring in infancy or early childhood, in which fats and most carbohydrates are not well tolerated and utilized.

UNITED FRUIT COMPANY

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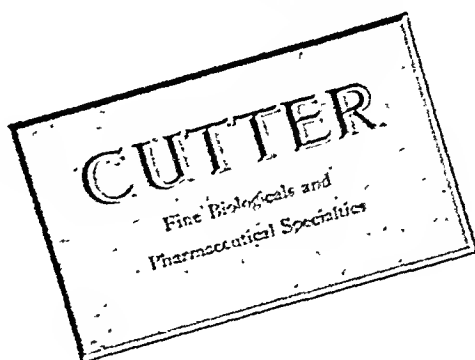
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American Journal of Public Health

and THE NATION'S HEALTH

Volume 35

June, 1945

Number 6

Uses and Value of Industrial Vital Statistics*

RUTH R. PUFFER, DR.P.H., F.A.P.H.A.

Director of Statistical Service, State Department of Public Health, Nashville, Tenn.

THE basic data used in building public health programs in the past have usually been derived from mortality statistics. The need for control of preventable diseases such as typhoid fever, diphtheria, and tuberculosis has been determined from death rates from these diseases. From information regarding the size and nature of specific problems in an area, a health program is built to serve the people of that area.

Other methods have also been utilized for determining health problems. If reporting of certain notifiable diseases is complete, these reports are valuable. Surveys are often made to learn the magnitude and nature of specific problems. Whatever the method used, statistical data are essential for establishment of the problem and later, for measurement of the value of the work.

With the expansion of public health activities in the field of industrial hygiene, basic data are needed for deter-

mining the industrial health problems. The need for information in this field is not new. In fact, in a report¹ from the Statistical Office of the U. S. Public Health Service prepared in coöperation with the Committee on Industrial Morbidity Statistics of the Vital Statistics Section of the American Public Health Association in 1919, the discussion of sickness records was introduced by the statement, "No factory management, employees' organization, or public health agency can control or prevent sickness without knowing when, where, and under what conditions sickness actually occurs."

The purpose of this symposium* is to reiterate this need of industrial vital statistics data and discuss records which serve in the program in order that more rapid progress may be made in the future. In this introductory paper, the uses and value of industrial vital statistics for the establishment of

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

¹ Fillmore, Anna. Nursing Records in Industry. *A.J.P.H.*, 35, 3:221 (Mar.), 1945. McDavitt, T. V. Industrial Medical Records. *A.J.P.H.*, this issue, p. 568. Bloomfield, J. J. The Industrial Hygiene Survey. *A.J.P.H.*, this issue, p. 559.

sound industrial health programs will be discussed with especial consideration of (1) the industrial statistical data; namely, deaths, cases of occupational diseases, industrial accidents, and non-occupational illnesses and injuries; (2) the study of absenteeism; and (3) the extension of statistical services to industry.

INDUSTRIAL STATISTICAL DATA

In considering industrial statistical data for improving the health of workers, records of deaths, cases of occupational diseases, occupational accidents and non-industrial illnesses and injuries provide material for definition of the problem. The value of records of these types and the methods of study will be considered first.

DEATHS

In public health programs, the value of mortality statistics for definition of the problem and for measurement of progress is well recognized. In an individual industry, however, mortality statistics will usually be of limited value. Industrial employees are in an age period with a relatively low death rate. For a plant with less than 1,000 young workers only an occasional death would be expected. Since persons suffering from a chronic disease are rarely employed at the time of death, no record of death is available in the plant where the person was last employed. Although mortality statistics for a given plant may be of limited value, such statistics according to occupation and industrial group of the deceased for a larger unit of the population may be of tremendous value. Using data from the United States Bureau of the Census for selected states in 1930, Whitney² studied death rates from specific causes according to occupation and industry group. These are the only known extensive data on death rates by occupation in this coun-

try. The English have studied mortality according to occupation of the deceased. Such statistics are valuable only for a large unit of population as for a large city, a state, or for a section or the whole of the United States. State health departments could render an important service by improving the data on occupation and industry on death certificates and by analyzing this material. Such analyses would be a contribution to industrial health work.

OCCUPATIONAL DISEASES AND OCCUPATIONAL ACCIDENTS

Morbidity statistics will be preferable to mortality statistics for industrial hygiene activities. Two types of data—cases of occupational diseases and occupational accidents—are known to be indications of industrial hazards. Probably in the majority of industries, such cases and accidents would come to the immediate attention of the medical department and to management. In states with laws for compensation, data will be collected for all industries. In some of the states, cases of occupational diseases are reportable and thus valuable statistical data may be made available on a state-wide basis. Studies of the incidence of occupational diseases and of occupational accidents on a state level would be of great value to individual plants and for administration of an industrial health program. Satisfactory data in this field are limited.

With recent improvement of working conditions in industry and the elimination of hazardous processes, cases of occupational diseases occur relatively infrequently. The frequency of occurrence will depend upon the processes in the plants. In a public utility³ for 4 years, 1938–1941, only 1.7 per cent of the absences due to illness and injury were due to industrial injuries, or 1 out of 59. The frequency of absences due to occupational disease is usually even less.

NON-OCCUPATIONAL ILLNESS AND INJURY

The common causes of illness and injury in the general population are responsible for absences and lost time in industry. Since the frequency of disabling illnesses may vary according to industry, and since conditions in different departments and work rooms may affect the absence rates, we need to study the frequency of occurrence of all illnesses and injuries, non-occupational as well as the occupational.

The study and prevention of illness and injury is of interest to all concerned with the health of the adult population. The Public Health Service has collected data on the extent and causes of illness in the general population. Records for 9,000 families in 18 states visited periodically for 12 months in 1928-1931, were used for a series of papers. (See reference 4 for papers in this series.) For these records field workers visited the homes at intervals of 2 to 4 months for a period long enough to obtain a sickness record for 12 consecutive months. Thus material is available showing the frequency and duration of illness by causes by age, sex, etc. This work was followed by the National Health Survey⁵ conducted in 1935-1936 by the Public Health Service, with the aid of grants from the Works Projects Administration. This survey consisted of a house-to-house canvass of sickness and medical care among 2,500,000 persons in 83 cities and certain rural areas. In 1938 a special study^{6, 7, 8} was initiated in the Eastern Health District of Baltimore by the Service and the Milbank Memorial Fund in coöperation with the Johns Hopkins School of Hygiene and the Baltimore City Health Department "in an effort to ascertain the maximum rate of illness in a sample population through relatively frequent observation, and to investigate particularly the chronic diseases. . . ." Such surveys

carried on by the Public Health Service and other agencies have provided excellent information on illness and injury in the general population. They are special projects requiring experienced workers and large expenditures of money.

In industry, an unusual opportunity is provided for the collection of data on disabling illnesses and accidents for a large group of the population. Information regarding illness and injury may be obtained routinely without the expenditure involved in a special investigation or survey. The reason for each absence of one calendar day or longer may be recorded at the time of the absence. To insure satisfactory information on causes of illness, a procedure whereby the employee reports to the medical department, may be established if not already a part of the medical program. From the analysis of the causes of absences the health programs of industrial workers may be defined and thus sound industrial health measures may be established for improving the health of workers. Also from the continuing study of absences, the accomplishments may be measured and programs improved.

STUDY OF ABSENTEEISM

The absences in a given plant may be studied to learn in which groups they are occurring and the reasons for these absences. The factors—age, sex, color, department, causes of illness or injury—all need to be considered, since absence rates vary in these groups. An excellent discussion of absenteeism is given by Gafaer⁹ in the *Manual of Industrial Hygiene*. In planning studies of absenteeism, the types of absences, the record and procedures, and rates to be used should be considered. These three subjects will be discussed briefly.

TYPES OF ABSENCES

The types of absences to be studied

for definition of the problem are important. Absences from illness and non-industrial injury lasting 8 days or longer have been used by Gafafer^{10, 11} in studies of absenteeism among industrial workers. In quarterly reports of 250,000 male workers such absences are obtained for analysis from periodic reports from sick benefit associations, company relief departments and group insurance plans. The analysis of absences in a public utility prepared first by Sappington¹² and later by Gafafer^{13, 14} includes absences from illness and injury of one calendar day or longer. Only a small proportion of absences lasted as long as 8 days. In this public utility for the 4 years, 1938-1941, only 17 per cent of all recorded absences due to sickness and injury among the males and 13 per cent of all recorded absences among the females extended through the eighth day.¹⁴ Since absences of short duration occur very frequently and since control measures may be effective in preventing some of these short-time absences, the study of absences of one day or longer would be valuable in planning a control program.

The number of absences and reasons for absences from causes other than illness and injury will vary according to plant policy and the type of industry. In our experience in Tennessee for white employees in 6 plants for a limited period, 49.4 per cent of all absences were reported to be due to illness or injury. The variation was great with only 27.9 per cent due to illness and injury in one plant and 83.1 per cent in another. The percentage of absences due to illness or injury in females of 55.0 was higher than that in males of 44.7. For males 3.6, and for females 3.7 absences from all causes were recorded per employee per year.

Since absences from causes other than illness and injury may be a big factor in loss of time in a specific plant.

knowledge of the reasons may be helpful to the personnel department as well as to the medical department. Some of these absences may be caused by home problems or individual problems which may be the forerunners of absence due to illness. Since some record is usually kept of all absences of employees, it would seem advisable to record the reasons and then study the reasons for knowledge of the absenteeism problem in general and of the industrial health problem in particular.

RECORDS

The planning of a satisfactory record of absence is the first step in the study of absenteeism. Essential minimum data on the record would include name or identification number, color, sex, age, department, date absence began, date absence terminated, reason for absence, diagnosis for illnesses and cause of injury. The procedure for completion of such records must also be determined. Causes of absences from illness and injury may be obtained when the employee reports to the medical department on return.

In the study of absenteeism in employees of the Tennessee Department of Public Health, each employee completes a small absence record giving his reason for absence and cause of illness in addition to the other minimum data given above. This record is for statistical purposes only and is sent to Statistical Service for use in analysis.

At the end of a given period, tabulations of these records of absences may be prepared for current knowledge of the situation. At least monthly, the numbers of absences should be obtained and rates calculated. In a small plant with proper procedures, these records may be studied easily. In a large plant, some method of assembly of the data would be required preferably by use of tabulating equipment. In some plants such information may be avail-

able or may be made available to the medical department.

RATES

Absences need to be referred to a base so that comparisons may be made. Three rates, the frequency rate, the disability rate, and the severity rate are useful rates in these analyses:

1. Frequency rate

$$\frac{\text{Number of absences in specified period}}{\text{Average number of employees}} \times 100 \text{ or } 1,000$$

2. Disability rate

$$\frac{\text{Number of days lost in specified period}}{\text{Average number of employees}}$$

3. Severity rate

$$\frac{\text{Number of days lost for terminated absences}}{\text{Number of terminated absences}}$$

For comparability, it is probably preferable that frequency and disability rates on an annual basis be used. Thus the frequency rate is similar to a death rate or case rate.

Another useful figure in the study of absenteeism is the average daily percentage of workers disabled.

$$\frac{\text{Days lost in specified period}}{\text{Average number of employees} \times \text{days in specified period}} \times 100$$

Rates by departments, age, sex, and color reveal noteworthy differences. One department may have a frequency rate ten times that in another department, indicating the need of study of the reasons and consideration of other variables.

STATISTICAL SERVICES

The industrial hygiene unit established in state health departments usually includes medical, nursing, and engineering personnel. Bloomfield¹⁵ states that it is generally conceded that we need the combined efforts of the physician, the engineer, the chemist, and the nurse. Another type of public

health worker, the statistician, could well be made available for industrial hygiene activities. There are two types of services in which the statistician could render assistance: (1) at the state level in the study of mortality statistics according to occupation and of occupational disease and accident statistics, and (2) statistical service to individual plants through consultant service on records and procedures and through analyses of absenteeism.

A year ago, in a paper before this group on industrial hygiene in the post-war world, Townsend¹⁶ discussed the compilation and analysis of data on disabling sickness and occupational diseases stating, "Here the state vital statistics bureau or the state division of statistical service could be of enormous help to governmental industrial hygiene units and industry by providing good statistical services." This service is needed especially for plants with 300-2,000 employees. Also, there is need for such statistics for a large area in order to provide data for comparison with those from individual plants. It is recommended that the services of statisticians be used in the industrial hygiene program in order that industrial vital statistics data will be available for building sound health programs.

SUMMARY

1. As in other phases of public health activities, in the expansion of industrial hygiene activities, statistical data are needed for definition of the health problems. Death, cases of occupational diseases, industrial accidents, and records of non-occupational illness and injury provide material for use in the industrial hygiene program.

2. Since the common causes of illness and injury in the general population are responsible for absences and lost time in industry, the frequency and duration of such illnesses need study for improving the health of industrial workers.

The study of the causes of all absences of one calendar day or longer is recommended for building a satisfactory industrial health program.

3. In addition to the services of the physician, the engineer, the chemist, and the nurse, the statistician could well be made available for industrial hygiene activities rendering assistance at the state level in the study of mortality statistics, of occupational disease and accident statistics, and by giving statistical assistance to individual plants with studies of problems of absenteeism.

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Cabinet Post Urged for Social Welfare Work

Formation of a new cabinet post for the coördination of all education, health and welfare services in one administrative agency is the goal of a committee of 25 persons in these fields, headed by Mrs. Eugene Meyer, wife of the publisher of the *Washington Post*, and Leonard W. Mayo, Sc.D., Dean of the School of Applied Social Science, Western Reserve University, Cleveland. According to the *New York Times*, the group is at work on detailed plans which envisage a Secretary of

Public Social Services, who might alternatively be called a Secretary of Education, Health and Welfare in the President's Cabinet. The proposed department would unify administrative control over federal welfare activities, working with similar departments in the states. Ultimate localization of the plan would be in "the Community Service Center," where public and private health and welfare agencies, doctors and psychiatrists would be available to individuals.

Industrial Health Records: The Industrial Hygiene Survey*

J. J. BLOOMFIELD, F.A.P.H.A.

*Senior Sanitary Engineer, Industrial Hygiene Division, Bureau of State Services,
U. S. Public Health Service, Bethesda, Md.*

BEFORE we can intelligently discuss the type of records a plant should maintain on the working environment, we should first define our terms as well as our objectives. By industrial hygiene I mean the responsibility of keeping every worker on the job by the prevention of sickness and accidents, and, if disability is incurred, restoring the worker to the job as quickly as science, skill, and nature permit. Obviously, one of the most important functions in fulfilling this responsibility is the study of the workroom environment and its effect on health, in order to evolve methods for the control of those hazards which such a survey may reveal. Furthermore, in the present discussion of the industrial hygiene survey no attempt will be made to include studies of safety hazards, but only those conditions which may produce disease.

In studying the subject, it would appear that there are at least four uses to which industrial hygiene survey records may be put: (1) They may serve as a yardstick in the control of a hazard and in the maintenance of such control. (2) They should be valuable to the medical department in its work of health maintenance. (3) They are useful in a promotional way, in that they

give added support in obtaining the needed corrections. (4) They are indispensable at times in matters of litigation.

THE INDUSTRIAL HYGIENE SURVEY

One of the first tasks in environmental control is to conduct a survey of plant conditions so as to determine the nature and scope of the problem. In the absence of adequate occupational disease and other morbidity statistics, health hazards may be ascertained by conducting a preliminary survey of the working environment.¹ Such a preliminary survey will serve as a guide for the more detailed studies which may be necessary, in order to determine the relationship between the environment and its effect on the health of the worker. This type of survey includes the sanitary appraisal and the occupational analysis of the workroom and its employees. Moreover, it shows the extent to which certain facilities are furnished the workers with reference to such important items as accident prevention, first aid, medical and nursing services, engineering control of occupational diseases, and the availability of records of accidents and illness. It also reveals the specific occupational exposure to various health hazards whether of a chemical, biological, or physical nature, and gives an idea of the control measures in practice for each exposure.

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

Such surveys have been the practice in industrial hygiene in this country for a quarter of a century or more and their pattern has been well established over the years. In order to assist the investigator in the conduct of such inspections, certain forms have been developed, and those employed by the U. S. Public Health Service are depicted in Figures 1-3. In practice, the

FIGURE 1

Form B

National Defense Industrial Hygiene Survey
Plant Survey

Page No. Date
Name of plant Industry Code and No.....

1. GENERAL

Department (room)Type of Building
Building No.Location
Operations conducted in room
..... Shifts worked
General impression as to crowding
.....

2. SANITARY DATA

| Dimensional | | Cleaning services | |
|--------------------------------------|------------------|------------------------|--|
| Floor area | ft. ² | Times per day | |
| Net floor space | % | Sweeping dry | |
| Height of room | ft. | Sweeping wet | |
| Area windows | ft. ² | Vacuum | |
| Ratio windows to
floor area | | Washing | |
| Ft. ² cap. | | Refuse disposal | |
| | | Cuspidor service | |

Personal Services

| | M | F |
|---|---|---|
| Cloak rooms | | |
| Lockers provided | | |
| No. clothing changes provided per week: | | |
| Washing facilities: Type | | |
| No. workers per wash faucet | | |
| No. workers per shower | | |
| Drinking water: Type | | |

| | | | |
|-------------------|--------------|-------|-------|
| Toilet facilities | | | |
| Type and No. | Illumination | Vent. | Cond. |
| Male | | | |
| Female | | | |

preliminary survey consists of carefully filling out these inspection forms and jotting down any additional notes or items which may not be provided for in the form. After completion of these forms, detailed analysis of the data in them is needed. It is this detailed analysis which gives a fairly complete picture of the hygienic conditions in each workroom and the ways and

FIGURE 2
Form B (Continued)

Page No. Date

3. VENTILATION

Natural Type
Artificial Type & No.
.....
.....

4. ILLUMINATION

Natural General impression
 Condition of windows
Artificial General impression
 Type & No. Condition
 Shadow or glare

5. SAFETY HAZARDS

.....
.....
.....

6. FUMES AND GASES

.....
.....
.....

7. DUSTY PROCESSES

.....
.....
.....

8. SPECIFIC POISONS

.....
.....
.....

9. EXPOSURE TO ABNORMAL TEMPERATURES, DAMPNES, RADIATION, NOISE, ETC.

.....
.....
.....

FIGURE 3

Form C

National Defense Industrial Hygiene Survey
Workroom Survey Data

Page of

Name of Plant Industry Code and No.
Department D/W S/D..... Workroom No.
Informant's Name Surveyed by Date

| Occupation | Number of persons | | | Nature of job | Raw materials and byproducts | Exposure code | Control Measures | | | | | | | | | | Remarks |
|-----------------------|-------------------|---|---|---------------|------------------------------|---------------|------------------|-----------|-----------|------------|-----------|----------|-----------|------------|-----------|-------|---------|
| | M | F | T | | | | Pos. Ven. | Neg. Ven. | Loc. Exh. | Enc. Proc. | Wet Meth. | Gas Mask | Respirat. | Pres. Hel. | Pro. Clo. | Other | |
| Total brought forward | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Total | | | | | | | | | | | | | | | | | |

means in operation for maintaining these conditions.

These forms, or those of a like nature, should be completed for each place of employment and should constitute a permanent record in the plant files. Furthermore, such surveys should be conducted periodically, the frequency depending upon the changing conditions in the plant as to nature of the processes and volume of employment. In this manner, yearly or periodic re-inspections will serve as a basis of comparison and indicate whether corrections or improvements are needed.

The preliminary survey will determine what steps are necessary for the

control of any hazards in the workroom. However, in order to determine a worker's exposure to materials or conditions incident to his employment, one must have precise data on such exposures. In some instances, the difference between a hazardous and a non-hazardous condition may depend upon whether or not the worker is exposed continuously to concentrations of materials bordering on the threshold limit of toxicity, i.e., the maximum allowable concentration. For example, in the case of exposure to certain lead oxides where the maximum allowable concentration has been standardized at 0.15 mg. of lead per cu.m. of air, it is

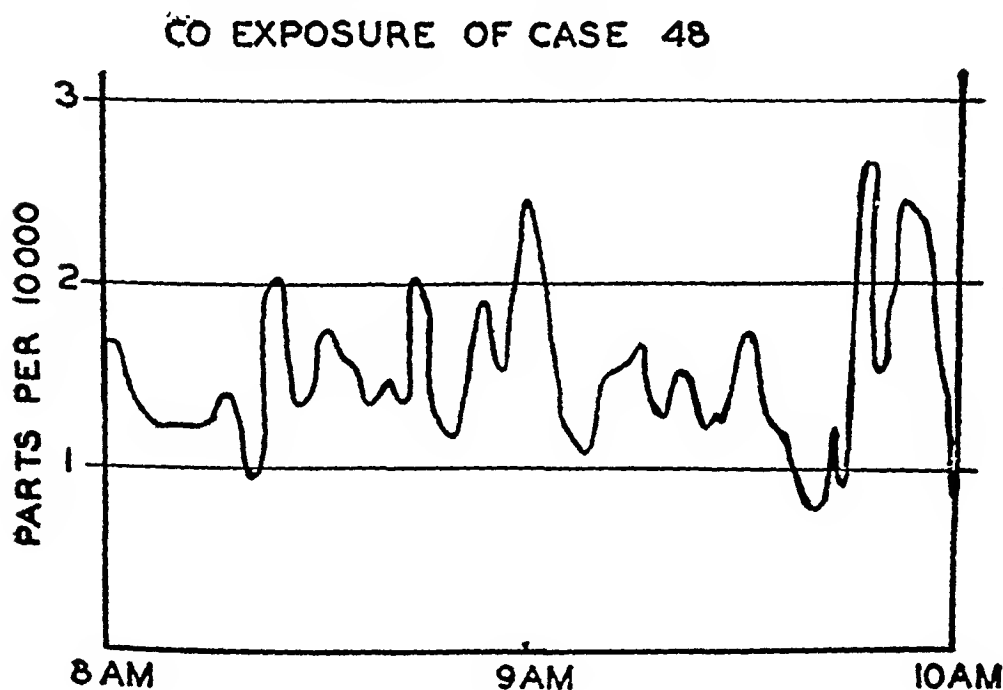
important to know whether the worker is inhaling lead in concentrations slightly above or below this limit.² Frequently, a difference of 1 mg. in the daily intake of lead by an exposed worker may spell the difference between a safe and an unsafe condition.

Today the industrial hygienist has at his disposal delicate and precise instruments and methods of analysis unprecedented in the history of industrial hygiene, and the knowledge concerning such matters is increasing daily. It is no longer necessary to guess as to exposures. Where maximum allowable concentrations have been established, the industrial hygiene survey of plant conditions is a direct indication of the existence or absence of an industrial health hazard. By proper evaluation of the chemical composition of the atmospheric contaminants, the concentration of these contaminants in the air and the average exposure of the worker each day, we are able to predict

the injury that will be caused. For certain materials, such as silica dust, which have a slow but cumulative adverse effect, the above mentioned technique applied to the worker's occupational history enables us to estimate the amount of damage that may already have been done.

When maximum allowable concentrations of an atmospheric contaminant are not known, the detailed workroom study will serve another purpose, if clinical investigations are made concurrently with environmental studies. The findings on occupational exposure may indicate the permissible amounts of toxic materials that may be tolerated with safety. Many of our present-day standards have been established in this very manner. Furthermore, such findings and records of them are of great value to industrial hygienists since they constitute a basis upon which to develop protective devices and control measures, such as exhaust ventilation,

FIGURE 4—Concentration of carbon monoxide to which Case 48 was exposed during the two hours that immediately preceded the taking of his blood sample. This officer, a heavy smoker, had the highest blood carbon monoxide concentration found in the tests made during March—13.1 per cent of his hemoglobin was combined with CO.



respiratory protection, and so on. And, finally, these detailed industrial hygiene surveys present a record of the efficiency of any devices that may have been introduced for the control or elimination of hazards.

Obviously, the type of record which will be needed in an attempt to maintain safe and healthful working conditions will vary from plant to plant and from workroom to workroom, depending largely upon the nature of the exposure. The information obtained will run the entire gamut of recording technique, varying from a continuous record, such as shown in Figure 4, which is an automatically recorded graph of carbon monoxide gas concentration for every minute of an entire day, to those obtained by indicating instruments or by other sampling techniques involving at times precise laboratory analyses. In those operations where dangerous gases or other air contaminants are employed, it is quite important that a record of the former type be maintained, since exposure for even a short period to relatively high concentrations of such contaminants may spell the difference between life and death. On the other hand, exposures to such substances as silica dust, lead oxides, or certain

solvents, which require considerable time to produce untoward symptoms, and which have a cumulative effect on the body, will not necessitate a continuous record of the type mentioned. In such exposures, it may only be necessary to determine the concentrations at periodic intervals, say, weekly, monthly, or less frequently. Various types of forms are being employed for recording such data and a typical one is illustrated in Figure 5.

These latter types of forms are not necessarily of a standard nature, but are developed for each particular problem or exposure. The main consideration is that they be as simple as possible, so that not only will time be saved in recording the information desired, but the objectives will be achieved and not be clouded by extraneous information. Obviously, if a research study is involved, then it may perhaps be necessary to record a good deal of detailed data which may or may not yield any tangible results. However, in the present discussion we are primarily concerned with industrial hygiene survey records employed as one function in the maintenance of worker health. For this reason, only the bare essentials are indicated. Figure 5, depicted in

FIGURE 5

Atmospheric Lead Determination

| | |
|--|--------------------|
| Plant: | Date: |
| Department: | Operation: |
| Sampling Location: | |
| | |
| Sampling Time: Start: | Finish: |
| A.M. | A.M. |
| P.M. | P.M. |
| Volume of Air Sampled: cu.m. | |
| Sampling Instrument: Impinger | Precipitator |
| Method of Analysis: | |
| Lead in Sample: .....mg. | |
| Atmospheric Lead Concentration: .....mg./m. ³ | |
| Sample Collected by | Analyzed by |

this discussion, is an example of a very simple record. This same record could be made more detailed by the inclusion of other data obtained in the actual study, but it is my own personal opinion that such data would best be recorded in a permanent notebook or perhaps kept for a time as worksheets.

USE OF RECORDS

Earlier in this discussion, it was brought out that records in themselves are of no particular value unless they are maintained for the achievement of certain objectives. A few of the objectives in relation to such records were enunciated at the beginning of this paper. In a sense, these objectives show the interrelationship between the industrial hygiene survey data and the records discussed by the preceding speakers in this symposium.³ Let us take the initial objective to be achieved by industrial hygiene survey records, namely, the use of such records for maintaining a rigid control of the working environment.

For example, in the manufacture of lead storage batteries it is essential to maintain accurate records of the exposure of workers in various departments to the lead compounds encountered in this industry. If samples of the air are taken and analyzed for lead on a periodic basis at various locations in a workroom, and in all the workrooms where such exposure exists, then the industrial hygienist has at hand an excellent picture of the efficacy of his control measures. Quite frequently the results of the exposures are recorded not only on a form of the type illustrated earlier, but actually placed on a blueprint of the workroom itself. Such records are essential if control is to be achieved and worker health maintained. Otherwise, one is merely assuming that control devices are functioning perfectly and that the workers and their supervisors are coöperating in the use

of control measures to the fullest extent. In the final analysis it must be remembered that the real criterion is not whether there is an exhaust system of ventilation or that an air line respirator is installed and that certain transport velocities are being maintained in exhaust ducts, but the actual exposure to the air contaminant under investigation.

Perhaps one of the most important functions of the industrial hygiene survey record is its value to the medical department in its work of medical control of industrial health hazards. It should be axiomatic that the medical department and the industrial hygiene department work as a team. Each can be of great help to the other. There are many ways in which these two agencies can coöperate to achieve the common objective defined at the outset of this discussion, and I shall attempt to give only a few illustrations to bring out my point. It will be recalled that Figure 3, which illustrated our form C, contained detailed information on each occupation in a plant. This information consisted of such data as the nature of the occupation, the number of workers in each occupation by sex, a brief description of the job, the various raw materials, by-products, and finished products involved, the exposure to various hazardous materials by occupation, and the existing control measures.

A copy of this form, or at least the essential data for each occupation which may be obtained from such a form, should be in the hands of the medical department and the personnel department. In this way, the requirements of each particular job and the exposures involved will be known to those having the responsibility of employing workers and to the medical department, which has the responsibility of the proper placement of a worker. These data, moreover, will indicate to the physician and his coworkers the type of physical examination which should be made, the

kind of laboratory tests, and, what is still more important, the frequency of the periodic examination. Naturally, coöperation is a two-way street, and the medical department is in a position to furnish the industrial hygienist with information from the periodic examination findings which may indicate the necessity for looking into certain exposures, for which, apparently, the control measures are breaking down.

It is not being implied, of course, that the medical department should rely entirely on the information furnished by data of the type recorded on form C. A better practice, of course, is for the medical department personnel to be thoroughly acquainted, through first-hand inspection, with each and every occupation and exposure in the plant. Such an acquaintanceship may only be obtained by periodic visits to all the workrooms where hazards are present.

It should perhaps not be necessary at the present stage of development of industrial hygiene to obtain a lot of information on exposures for the purpose of promoting a program or convincing management of the need for certain corrective measures. However, one cannot blame management for being hesitant to spend large sums of money, and quite often large sums are involved, without having the industrial hygienist's opinion backed by adequate and precise information. It is for this reason that industrial hygiene survey records play an important part in convincing management of the need for certain improvements in plant conditions. Furthermore, such data are very valuable to consulting engineers or architects who may be called in on the problem and certainly are desirable in making a comparison of the "before and after" type. Such comparisons make it very easy to convince management when similar problems arise in the future.

One of the uses to which industrial hygiene survey records may be put is

in connection with litigation, a subject which is to be covered by the last speaker of this symposium.³ Survey records of this type are very important in medicolegal cases, since at the time they are obtained, if they are maintained routinely, there is no question in anyone's mind that the data may ever be used in a lawsuit. There are two reasons why data which are collected routinely in a maintenance program are more valuable than information obtained for the purpose of preparing a suit. In the first place, information of recent origin does not indicate previous exposure about which it is so necessary to know in those instances where the toxic material has cumulative influence. Second, much more credence is apt to be given to data collected routinely prior to a suit, since it is obvious that such data are ordinarily being obtained for maintenance purposes and not with the idea that some day they may be employed in litigation.

By this time we must all realize that to achieve the objectives discussed in this paper, coöperation is essential among all involved, but especially between management and labor. Coöperation is very desirable and necessary between the industrial hygiene department and the medical department, especially if the two are separate entities. The nature of such coöperation has already been discussed. There should be a very close working relationship, too, between the purchasing department and the industrial hygiene personnel, and also between the latter and the research and development office. No new substances should be purchased or introduced into the plant, nor should any new processes involving the use of old materials be introduced, until the industrial hygiene department has had an opportunity to evaluate these materials and processes in the light of present information. There are innumerable examples in the literature today of

serious occurrences which could have been avoided had there been such close coöperation between those responsible for production and those who have the important task of maintaining every worker on the job at his highest level of health and efficiency.

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Social Security Board Outlines a Policy for Health Insurance

"For reasons outlined in the following sections of this report, the Board believes that it would be simplest, most economical and most effective to establish comprehensive protection through federal legislation, while providing authority to utilize state agencies and other facilities. In any event, administration of benefits should be so decentralized that all necessary arrangements with doctors, hospitals, and others would be worked out on a local basis. The general pattern of arrangements with hospitals and doctors should be developed with the collaboration of professional organizations and with careful regard for regional, state, and local circumstances. In each area of administration—local, state, and federal—policies and operations should also be guided by advisory bodies representing those who pay the insurance contributions and those who provide the services.

"The much advertised fears of 'socialized medicine,' 'regimentation' of doctors, hospitals, or patients, loss of the patient's freedom to choose his doctor, and deterioration of quality of care can be made wholly groundless. A system of medical care insurance can and should be so designed as to avoid these disadvantages.

By making services readily available to those who need them, without fear of the costs, the quality and effectiveness of service may be improved, and the incomes of doctors and hospitals may be made better and more secure. If, at the same time, professional education, research, and the construction of needed facilities are financially aided, progress in medicine and improvement in national health can be greatly accelerated."—From *9th Annual Report*, Social Security Board, 1944, Federal Security Agency.

Industrial Medical Records*

Some Legal Considerations

T. V. McDAVITT

*Bureau of Legal Medicine and Legislation, American Medical Association,
Chicago, Ill.*

ANY discussion of the legal problems inherent in the compilation, custody, and use of industrial medical records must be predicated on an appreciation of the purpose of such records, their innate functional uses, and their elements or parts. It seems desirable then to undertake some statement as to the contents, form, purposes, and potential functions of industrial medical records.

A determination of the purpose of an industrial medical record will not only suggest its contents, mechanics, and concomitant potential functional uses, but will serve also somewhat as a key or clue to many legal problems that can arise. Is the industrial medical record to be kept solely for such purposes as will serve the narrow interests of employment alone? That is, will such records contain data with respect only to such procedures as have been undertaken to afford protection to the employer against potential legal action or as have been undertaken to ascertain the occupational utility of the worker? Or will the records evidence a more socially minded objective? That is, will the industrial medical record be the record of an industrial health program in the true sense as applied to one particular employee?

If the record actually reflects a true

program of industrial health it can serve a number of purposes and can have a corresponding number of functional uses. In fact, from a long range viewpoint, the more socially minded purpose should serve the interests of industry better than the narrower purpose first indicated. Experience should demonstrate to industry, if it has not already done so, an elementary truism long since recognized by the physician in his relations with his patient—namely, to phrase it in language here pertinent—what is for the good of the employee and of the public will eventually in good for industry.

If, then, the record reflects a policy designed to promote and maintain the health of the worker, it is capable of other uses relating not only to the worker and the employer but to plant hygiene, to the health and necessarily to the welfare of fellow workers, and to the public health at large.

What is intended to be expressed here is a conception of the industrial medical record as a means or medium through which are compiled data that will enable as a very minimum the attainment of the following objectives:

1. The serving of the direct interests of the employer, such as placement of the worker in his most useful capacity, and legitimate defenses to claims for compensation for alleged industry incurred disabilities

2. The protection of the health of the individual worker and the serving of his best interests

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

3. The evaluation of facts and trends of importance to other workers in the plant

4. The ascertainment of facts that can be utilized by the medical profession and by public health agencies in the promotion of the health of the public generally

This states not only the objectives of an industrial medical record but indicates also some of the functional uses to which it may be put.

It is material next to advert to the contents of such a record. It would seem that regardless of form the industrial medical record should contain:

1. Identification data, name, address, date and place of birth, race, sex, marital status, clock or social security number and name and address of next of kin

2. Past medical and occupational history

3. Physical findings from various examinations such as preplacement, periodic, classification and termination examinations

4. Personality appraisal

5. Laboratory data

6. Chronological record of every visit to the dispensary

7. Other medical history since employment

8. Record of absenteeism, with causes therefor, if possible

9. All correspondence regarding the employee, such as notes from the family physician, memoranda, if any, from supervision and data from the safety and personnel departments

Legal Problems in General—The legal problems that can be encountered in connection with such records, as analyzed above, seem roughly to fall into two categories, namely, the problems connected with the use of those records and the problems that may arise in connection with their compilation. Because of limitations as to time and because, also, of an assumption that this group has a relatively greater interest in the legal problems connected with the use of those records, no attempt will be made here to discuss any legal problems that can arise from the compilation of the records. The term "compilation" as used here is intended to refer to such problems as the negligent infliction of injury on the work-

man by the physician while conducting a preemployment, placement, periodic or termination examination, injuries due again to the negligence of the physician inflicted on the workman being treated for an industrial injury, bad results following the submission by the employee to vaccination or some other form of inoculation required by the employer as a condition precedent to obtaining or retaining employment, the liability of the employer for permitting the occurrence of hazardous conditions of employment, and the like. This discussion will therefore be limited from here on to a discussion of restrictions on the use of the industrial medical record.

Restrictions on Use—The uses to which such a record may be put may be limited or broadened according to whether or not the record is regarded as being in the category of a confidential or privileged communication made to a physician. It should be emphasized that the analogy between a hospital record and an industrial medical record is not perfect since the hospital record reflects a true relationship of patient and physician and an industrial medical record, as a whole, does not do so. Certain parts of the industrial medical record may do so, particularly those portions with respect to dispensary and other care rendered an injured or sick employee. But, obviously, those portions of the industrial medical record relating to preemployment, periodic, classification or termination examinations, and the personality appraisal, do not reflect any relationship of patient and physician between the employee and the physician designated by the employer to perform such tasks. Nevertheless it would seem on principle that an employer can make only such use of those portions of the record as is consistent with the purposes for which the procedures were performed and in connection with the legitimate interests

of that employment. To that extent the relationship seems to be one of quasi-confidential nature.

The proper approach to problems connected with access to the record, it would seem, is not to determine the question in the light of what liability, if any, is assumed by the employer in permitting access to the industrial medical record of a particular employee, but rather to view the matter in the light of what duty, if any—legal, ethical, or moral—there is on the employer to permit access in any particular case. Few decisions of courts of appellate jurisdiction—usually the only courts whose opinions are available in the published reports—can be found that are squarely in point for the purposes of the present discussion. General principles, then, seem to be the only basis from which to carry on the discussion.

On principle, it would seem that an employer retains an industrial medical record for a threefold purpose: (1) he retains it as a trustee, or in some other confidential or quasi-confidential capacity, for the workman; (2) he retains the record as evidence of the care and attention his own agents or employees have rendered the workman; and (3) he retains it for other purposes directly related to the efficient and healthful conduct of his operations. If, then, the employer retains the industrial medical record as a trustee or in some other confidential or quasi-confidential capacity for the worker, in theory the employer can make no use of those records, aside from a use in defending himself or a use in accordance with the direct interests of the employment as designated above, inconsistent with the rights and the interests of the workman. Strictly from the workman's point of view he is entitled to privacy; that is, he has the right that the nature and the incidents of his illness be not subject to public view but only to the view of those who are acting for him or in his

interest, or to the view of those who are acting for the employer in connection with the legitimate interests of the employment.

As pointed out above that, even though the industrial medical record does not as a whole evidence a relationship of patient and physician with the attendant ethical and legal restraints on disclosure—as, for instance, a hospital record would—we can safely conclude from principle and from at least one available court decision (*Cruce v. Mo. Pac. R. Co.*, 287 S.W. 583, Supreme Court, Ark. 1926) that no disclosure of the portions of the industrial medical record that have any bearing whatsoever on matters to which the worker is entitled to privacy is legally permissible except under one or more of three factual situations, namely, (1) where the disclosure is in connection with the employer's legitimate interest in having the procedure performed; (2) where the disclosure is made on the request or with the consent of the worker; and (3) possibly, where the disclosure is in the actual interest of the worker.

This, I take it, means simply this: the interchange of information between different employers regarding the medical record of a particular worker is not legally defensible. However, the record can be made available on the request of the worker, or in his actual interest, or can be used by the employer to defend himself against claims of the worker, or for purposes of classifying the worker, or for any other legitimate purpose in connection with the employment relationship. The record, too, may be used as a basis for any reports required by law or by the subpoena of any court or administrative agency.

This, then, would seem to exclude access to the records by any outsider for purposes other than those just mentioned. How then can the medical records of a group of employees be used

as a basis for statistical study, clinical investigation, or other investigations relating to occupational hazards, exposures, or other phenomena connected with the occupation locally, etc. Whether the employee's right to privacy or to exclude the public view from the details of his industrial medical record should yield to some extent to the cause of medical science or studies that can affect public health, I am not prepared to say, as no legal authority can be found that would permit an industry to make such a use of the industrial medical records in its custody, excepting, of course, instances in which certain types of reports, such as to occupational or communicable diseases, injuries, death, etc., are required by law. However, such use should be permitted if the individual records can be used and presented in such a way as not to reveal the identity of particular employees. Possibly the use of a mass of such records for such purposes would be defensible, or at least the damages that could be recovered by an aggrieved employee would be extremely nominal, if in connection with the study or in connection with a publication of the results of the study no reference to individual employees is made.

A rather perplexing question may arise in connection with the demands of a worker, or his representative or one acting in his interest, for access to the industrial medical records. It is not altogether clear that even the worker has a legal right of access to records concerning himself, but in view of the fact that the employer in his compilation and custody of an industrial medical record is acting as trustee, in part, for the employee, the employee's interest should govern the employer's conduct, and the primary question

should not be—"Has the employee an enforceable legal right to inspect the records?" but rather—"What good reason is there for denying him access?" The employee has an immediate interest in such records either with a view to litigation or with a view to subsequent treatment: to that extent he may be harmed by a refusal to permit him or his representatives to inspect or copy the records. On the other hand, if the records have been properly kept and if the procedures covered by such records have been properly performed by the employees of the employer, the employer has no real reason in denying access. Access might as well be granted for in any event if litigation occurs the production of those records in court or before some tribunal can be compelled.

In many instances, the attending physician of the employee may desire access to an industrial record. In such an instance it would seem that such an access should be granted to the attending physician; clearly so when the employee authorizes the employer to do so. Even in the absence of such express authorization by the employee, access should be granted on the theory that when the patient places himself under the care of a physician he authorizes that physician to use such measures as are necessary to diagnose his condition and to determine and pursue the proper course of treatment and, obviously, the records with respect to the patient's employment experience may often be of material aid to his attending physician.

The above, in the opinion of the writer, is a reasonably accurate statement of the manner in which an employer may safely permit the use of industrial medical records in his possession.

Control Measures Against Importation of Disease by Men Returning from Overseas Duty*

LT. COL. THOMAS G. WARD, MC, AUS

Director, Epidemiology Division, Preventive Medicine Service, Office of The Surgeon General, United States Army, Washington, D. C.

THE importation of communicable diseases into this country by troops or patients returning from overseas has been a matter of constant concern to the War Department since the beginning of the war when it became apparent that troops would need to be sent to lands where diseases seldom or never encountered in the United States are prevalent. Brigadier General James Stevens Simmons, Chief of the Preventive Medicine Service, Office of The Surgeon General, has emphasized the necessity of adequate safeguards against this danger, although it is not considered a particularly grave one.

At last year's session of this Association, Lt. Col. O. R. McCoy, Director, Tropical Disease Control Division, Preventive Medicine Service, presented a paper¹ dealing with the hazard of importation of malaria. Other diseases and the areas in which they are encountered are filariasis in the South Pacific; epidemic typhus fever in North Africa and the Balkans; scrub typhus in New Guinea, the western Pacific region and Southeast Asia; schistosomiasis in Egypt; trypanosomiasis in Central Africa; and the encephalitides, notably Japanese B encephalitis, in Far Eastern areas.

The War Department has coördinated its activities in regard to the importation of diseases by returning personnel with other interested governmental agencies, such as the U. S. Public Health Service and the Department of Agriculture, and also, with the United States Navy.

The views and opinions of scientific experts in the various fields have been secured. Special boards and commissions, such as the Army Epidemiological Board, advise on the methods for the prevention of the introduction of such diseases into the United States.

To assist further in the prevention of the introduction of foreign diseases, the War Department has issued circulars, memoranda, and technical bulletins alerting the commanding generals and the medical officers overseas to the dangers involved, and directing that action be taken to prevent personnel with certain diseases from embarking for the United States or to render them noninfectious before embarkation. In this connection, explicit instructions have been given to medical officers overseas on modern techniques for the delousing of troops and their bedding, clothing, and equipment, on the type of physical inspection necessary to disclose these diseases, and on the importance of disease importation.

In the medical processing of troops or patients returning to this country

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

from duty abroad, medical officers have been instructed to keep in mind the protection of the individual and the protection of the public health. Special effort is made to identify and instruct or, where indicated, to treat individuals, who while on furlough are likely to suffer a recrudescence of a chronic infection, particularly malaria, or who unknowingly might spread disease among their families or in their home communities. While a complete medical history on each individual is impracticable, the areas in which the soldier has served are determined in order to ascertain as completely as possible the extent and degree of exposure to infectious and parasitic disease.

Soldiers debarking from overseas are examined medically. Special attention is given to the manifestations of clinical conditions most likely to be present as a result of the individual's particular foreign service. In this connection malaria, amebic dysentery, bacillary dysentery, filariasis, hookworm, schistosomiasis, trachoma, and venereal disease and tuberculosis in the infectious stages are particularly emphasized.

The examination for malaria consists of palpation for evidence of spleen enlargement and a thick blood film examination for parasites. The search for parasitemia is invariably carried out on individuals who have recently discontinued suppressive antimalarial drugs. Persons who have had malaria or who have recently returned from an area of high endemicity are cautioned that they may have a clinical relapse of an initial attack while home on furlough.

A careful examination of the stool is made on personnel who have suffered clinical attacks of amebic dysentery while overseas. If this examination is negative, the individual is released, but if the stool shows *Entamoeba histolytica* he is given a proctoscopic examination, and appropriate treatment if the findings of this examination so indicate.

Troops returning from areas where filariasis is endemic are given a careful examination with emphasis on the lymphatic system and the scrotal contents. Thick blood film examinations for microfilariae in the circulating blood taken during the day and at night are made. If the examinations are positive the individual is hospitalized.

Examination of the stool, employing a concentration technique, of individuals suspected of hookworm infection is done. Positive cases are treated.

Infection with schistosomiasis is determined by examination of the stool and urine for ova, and treatment is instituted when indicated.

In order to rule out trachoma, a careful inspection of the conjunctival surfaces is carried out and, if the infection is suspected, a slit lamp examination is made.

An x-ray examination of the chest is done on all suspected cases of pulmonary tuberculosis and, if this examination reveals significant pathology, the individual is hospitalized and treated.

If the physical examination shows evidence of a venereal disease in an infectious stage, darkfield examination, blood serology, and smear and culture for gonococci, when indicated, are carried out. If positive, the individual is treated.

If other disease conditions are suspected such as meningitis, encephalitis, or leprosy, the individual is hospitalized for diagnosis and treatment.

Because of their peculiar virulence and occurrence in severe epidemics in the past, certain diseases have come to merit special attention in the international movement of individuals. These are known as the quarantinable diseases and consist of cholera, smallpox, plague, epidemic typhus fever, leprosy, and yellow fever. While the concentration of attention upon this small group of diseases might at first appear unjustified, it is true that

analysis of the epidemics of historical importance shows these to be the diseases of greatest consequence. They therefore constitute the chief concern of the U. S. Public Health Service and the health authorities of other governments, and measures carried out by these services at ports and airports of entry are based on the prevention of these diseases.

For many reasons, military participation in the program of quarantine has become necessary during the war, and as a result of careful study of this problem jointly by the War and Navy Departments and by the Federal Security Agency, the relationship of the three services has been carefully reviewed and defined so as to establish the most complete possible protection despite unprecedented movements of large numbers of people, including prisoners of war and civilian refugees.

The nature of the traffic involved and the close control which could be exercised over such personnel have permitted the formation of a military program of foreign quarantine along somewhat different lines from those ordinarily governing civilian quarantine practice. Thus, while traditional quarantine depends upon knowledge of the occurrence of diseases in an area to which an individual is traveling and upon physical examination and detention, when indicated, at ports and airports of arrival, the military program takes maximum advantage of the broad policy of immunization required in the armed services and the continuous medical supervision exercised over military personnel. As a result, quarantine procedure is accomplished before and during travel rather than upon its termination. International travel upon military aircraft or military vessels is dependent upon satisfaction of War Department immunization requirements.

Inasmuch as these immunizations will ordinarily have been administered before the personnel entered the areas they are now departing, or during the time they have served in those areas, it is apparent that military personnel returning to the United States will have been already immunized against those quarantinable diseases occurring in the countries which they are departing.

Traffic is also contingent upon freedom from vermin and upon freedom from quarantinable diseases at the time travel is begun. Routine medical supervision of military personnel, supplemented by physical inspection within 48 hours of departure from foreign lands and within 24 hours before debarkation, is considered to warrant certification in these matters. Exceptions to satisfactory immunization, to freedom from vermin, or to absence of quarantinable disease must be brought to the attention of the appropriate commanding officer on ship board or in port, and travel may not be undertaken if in the opinion of the appropriate medical officer danger exists for other personnel. It is believed that this program permits maximum utilization of the principles of modern preventive medicine at the same time assuring protection, perhaps in excess of that offered by more traditional measures, with a minimum of restriction in international traffic.

In summary, while it is the consensus of most experts in the field of tropical diseases that the risk of importation of these diseases into the United States is small, nevertheless, the Army is taking all practicable precautions to prevent their introduction. The measures currently in force have been briefly reviewed.

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Physical Fitness and Health Problems of the Adolescent

Physiological and Emotional Problems of Adolescence *

LAWRENCE K. FRANK

Institute of Human Development, New York, N. Y.

IN opening this discussion, may I remind you of some aspects of adolescence which should be more clearly recognized in the consideration of physical defects and of programs to improve physical fitness.†

Adolescence is both a biological process and a period of social and cultural transformation. The juvenile organism during the second decade of life undergoes a process of growth, development, and maturation as it moves toward adult size and functional capacities and also changes from the status and conduct of the child to that of an adult with the privileges and responsibilities that go with maturity. Each of these processes and each step in this transition exposes the boy and girl to various hazards and strains and thereby gives rise to a series of physiological and emotional problems of adolescence.

First let us recognize that there is an orderly, regular sequence in growth, development, and maturation through which all boys and girls ordinarily will

pass. But each individual boy and girl will move through these sequences at his or her own rate, beginning at different chronological ages and attaining dimensions of structure and of functional capacities and of activities which are highly idiomatic for each individual.

This means that there are different patterns of growth, development, and maturation. Each has its peculiar advantages and its costs for the individual adolescent. Chronological age is of little significance during adolescence. Thus, puberty, or the first stage in sexual maturation, comes at different ages. Menarche may come as early as 10½ years of age, or as late as 17, with a modal age of 13 plus. In boys (for whom unfortunately there is much less knowledge of the pubertal process) puberty may come around 11 or as late as 16 or 17, with a modal age of around 14 plus. Obviously both the physiological and the emotional problems facing the individual boy and girl will be quite different, depending upon the age at which they come to puberty. Late puberty often has serious physiological and psychological significance for the boy or girl. Puberty and the subsequent processes of sexual maturation make heavy biological demands upon the organism and also expose the individual to much confusion and frequent conflicts as he or she strives to

* Presented at a Joint Session of the American School Health Association, the American Society for Research in Psychosomatic Problems, and the School Health Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

† For a review of recent research on adolescence, see *Adolescence*, 43rd Yearbook, National Society for Study of Education, Part I, University of Chicago, Ill., 1944. 360 pp. Price, \$2.25.

clarify and accept the masculine or feminine rôles and adjust to their ramifying consequences.

At this point it is important to emphasize that recent studies have shown that every individual is bisexual: each individual is partly male and partly female. Thus, whatever may be their official sex classification and their genital organization, the individual may have only a slight preponderance of male or female hormones and so reflect the growth and physiological concomitants of his or her hormone balance. The degree of bisexuality, therefore, further complicates the problems of physiological maturation and of personality development and social adjustment.

It should also be recognized that puberty is only the first stage in the process of sexual maturation. It may require one or two or even three years after the first menstruation before a girl will develop a more or less regular menstrual cycle and begin to ovulate and so attain the capacity for procreation. Unfortunately, less is known about male sexual maturation, but apparently the boy also undergoes a period of maturation.

In this connection it should be pointed out that sexual maturation in the male is accompanied by a number of physiological developments, some of which are of special importance in the consideration of physical fitness and physical training, namely, the change following sooner or later after puberty in the creatinin-creatinine excretion, in basal metabolism, in hemoglobin and in systolic blood pressure. The late maturing boy, therefore, may not have the physiological capacities for physical training and muscle hardening which the more early maturing boy may have. Consequently, the same program may have different consequences for boys with these two different patterns of growth.

It should also be recognized that the period of rapid growth in stature which is associated with adolescence comes at a different age for each boy and girl, depending upon his or her own peculiar genetic constitution and growth pattern and, to some extent, upon nutrition. It is especially important to recall that some boys and girls may grow with great rapidity; attaining almost full adult stature within a relatively short period of time, while other boys and girls may only slowly approach adult stature over a period of years. These different rates of growth have very different significance for the individual adolescent. What is of special moment is that the very rapidly growing boy or girl may still have juvenile, undeveloped gonads, with a heart and circulatory system, a respiratory system and gastrointestinal tract which are relatively immature, not adequate in size or functional capacity for their suddenly enlarged stature.

These organic imbalances probably occur in all adolescents to a greater or less extent, but the more pronounced discrepancies expose the individual to various stresses and strains as he or she attempts to live and function with these organic incongruities.

It should also be recognized that, because the whole adolescent organism is changing in size and shape, in organ systems and physiological functions, there may be, and usually is, a greater or less degree of physiological instability, or what Hoskins has called "physiological clumsiness." The capacity for homeostasis, in other words, may be impaired during this period of rapid growth, and in the endeavor to maintain organic integrity, the individual boy or girl may put a greater or less strain upon one or more organ systems and functional capacities. It should also be remembered that, due to the rapid growth in skeleton and the changing size of muscles, many of the

well established eye-hand coördinations and other muscular patterns may be disorganized, and the individual boy and girl may undergo a period of clumsiness and inability to handle himself or herself with any degree of effectiveness. This physiological instability and organic imbalance may be only a transient phase during adolescence, but if the individual boy or girl is put under undue stress and strain and is called upon to make efforts which are excessive for his or her stage of maturation, then it is possible these imbalances may be accentuated and possibly even made permanent. Perhaps a number of adult dysfunctions began at this time and persist because never attended to. This possibility of persistent disturbances will be enhanced if during this period the individual suffers from insufficient or inadequate nutrition and rest and therefore does not have what is essential to sustain further growth, development, and coördination of his or her organism.

Just because adolescence is often a period of rapid growth and further development of physiological capacities, it is not unwarranted to consider this period as something akin to second infancy through which the individual must be assisted if he is to attain adult maturity with a minimum of imbalance and organic disturbances.

Time will not allow any extensive description of the problems of the adolescent readjustment to the requirements and the opportunities offered by our society. It will suffice to remind ourselves that the individual boy or girl is expected to "grow up" and become a self-directing responsible adult, relinquishing the childish patterns of submissive obedience and dependence upon his parents. Each individual is also expected to clarify and accept the masculine or feminine rôles and thereby begin to prepare himself or herself for adult

mating and future parenthood. This frequently involves considerable difficulty and often intense emotional conflicts over the acceptance of the individual's own genital organization and of the place and function of sex in adult life. These conflicts arise primarily from what the individual has been told and has felt and experienced in early childhood. Finally, we must remember that in our society the adolescent boy or girl is expected to come to terms with our confused, disorderly social life, which involves the giving up of all those childish illusions about people, religion, government, etc., and to seek a job and accept what is called "reality." These are difficult readjustments because they so frequently involve a radical reorganization in the individual's ideas and beliefs and feelings, and they are intensified by the often bitter conflicts with parents and others in authority who are often reluctant to permit boys and girls to grow up.

We may say that during adolescence the individual boy or girl is not only organically imbalanced, uncoördinated, and physiologically unstable, but is often under severe emotional tensions. Since they are also unable to express many of their strong feelings, especially anxiety and resentment, and to release their tensions overtly, they frequently utilize one or more physiological processes for this purpose. Accordingly, there are many psychosomatic disorders or dysfunctions among adolescents, notably menstrual disorders among girls, gastrointestinal disturbances among boys, and a variety of other dysfunctions and ills. These disturbances of physiological functions, like the organic imbalance previously discussed, may be transient or they may become more or less fixed as persistent patterns of reaction, initiating what may become the more pronounced psychosomatic disorders of adult life.

It has been repeatedly pointed out

that adolescents are usually very much concerned about their normality and may suffer considerable anxiety about their size and shape and functional capacity, especially about their genitals. Moreover, adolescents, being engaged in the frequent struggles for emancipation from parents, are reluctant to consult with other adults and will avoid seeking or accepting medical attention whenever possible. They are also prone to various dietary excesses and consequently liable to inadequate and deficient nutrition at a time when they have urgent needs for vitamins and minerals as well as other foodstuffs.

In closing, it may be desirable to recognize that the child population has been decreasing for the past decade or more, and will probably continue to decrease despite the recent high birth rate. It is predicted that the 1950 census will show a decrease of two million and more in the age period 10-19.

The lowest death rate of all ages occurs in the period 10-14 years of age, but in the following period, 15-19, there is a rapid rise as adolescent boys and girls begin to succumb to the adult disorders and pathology. The morbidity records indicate that sickness is low among the 10-14 year group and is at a minimum for the 15-19 year age group, but these figures should be accepted with some caution. It is known that adolescents will rely upon their youthful vitality and very often strenuously resist acknowledging that they are ill. It should also be recognized that, while the age period 10-14 shows a low rate of about 4.7 per 100,000 of first admissions to state hospitals for mental disorders, the rate for the age group 15-19 is 40.7 for 100,000, approximately a tenfold increase. While definite figures are not available, it is generally acknowledged that there is a considerable amount of alcoholism

among adolescents, a certain amount of drug addiction and a significant number of suicides.

No one looking at these figures can feel any complacency about the present condition of our adolescent population. If we are genuinely concerned with improving the physical fitness of youth, it seems clear that we must take much more active and effective steps during adolescence and especially during the school age and earlier to bring about any real improvement. Many of the defects and causes for rejection in the army can be traced to childhood and preschool years. It should be remembered that for the first time we have had a cross-section of the female population under examination, and the reports of findings among women in the armed forces are no more encouraging than among the men.

In the light of the foregoing discussions, it is suggested that the preoccupation with the correction of so-called physical defects and with promotion of physical fitness of 18-19 year olds may obscure the much more important task of providing from infancy through childhood and adolescence what is necessary to enable the individual boy or girl to achieve health and sanity by meeting the biological and psychological problems of adolescence with adequacy and with courage. It is submitted that the usual medical or physical examination which is directed to the discovery of defects or pathology may not be adequate as a guide to the provision of a desirable regimen for the individual adolescents with these highly individualized patterns of growth and maturation. We should stress not status or defects at a particular moment, which are often symptoms of retarded or inadequate growth and development; rather, we should be concerned about the progress or failure of progress toward maturity shown by the individual adolescent.

Physical Fitness and Health Problems of the Adolescent

Health Service in a High School—What It Can Offer *

WILLIAM M. SCHMIDT, M.D., F.A.P.H.A.

Regional Medical Consultant, Children's Bureau, U. S. Department of Labor, Washington, D. C.

THE report, Causes of Rejection and the Incidence of Defects Among 18 and 19 Year Old Selective Service Registrants,¹ has focused attention upon the health of the adolescent age group. The leading causes of rejection among the 46,000 registrants reported upon by the Selective Service System represent, with the exception of educational deficiency, were problems that are essentially medical in character. The frequency of these problems, and of other conditions that did not in 1943 constitute a cause of rejection for service with the armed forces, indicates that a need exists in the 18 and 19 year old group and in younger age groups which may in part be met by appropriately organized health services in schools. We are concerned in this discussion with the contribution that may be made by health services in high schools. It must not be forgotten, however, that the problem extends to the elementary school and to the nursery school as well. Adequate service at one school level requires for its fulfillment integration with adequate services in the others.

The tabulation of number of registrants rejected per 1,000 examined, and

of number of cases found per 1,000 examined, is based upon a sample of nearly 46,000 reports of physical examinations and induction forms of 18 and 19 year old registrants. Colonel Rowntree has pointed out factors which limit the population studied, among them the fact that large numbers of physically fit young men had entered the armed forces by enlistment. Reports of these physical examinations were not available. Other limiting factors included deferments for education and war industry. The definition of conditions listed also limit the data.

Despite the limitations, the examination of such a large group of young men provides a picture of health conditions that must correspond, in general, with the problems to be met in the high-school population.

Approximately 25 per cent of the 18 and 19 year old registrants examined were rejected for military service. The leading causes of rejection other than educational deficiency were:

| | Rejected per
1,000 | Cases Found
per 1,000 |
|----------------------------|-----------------------|--------------------------|
| Eye conditions | 44.9 | 101.5 |
| Mental diseases | 27.6 | 33.2 |
| Musculoskeletal conditions | 22.7 | 59.0 |
| Cardiovascular conditions | 21.4 | 31.7 |
| Hernia | 16.3 | 25.2 |
| Ear conditions | 15.0 | 25.2 |
| Neurologic conditions | 14.8 | 17.5 |
| Syphilis | 10.2 | 12.2 |
| Underweight | 7.1 | 25.9 |
| Tuberculosis | 6.8 | 8.0 |

* Presented at a Joint Session of the American School Health Association, the American Society for Research in Psychosomatic Problems, and the School Health Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

Although there were few rejections for dental conditions, the prevalence of dental caries was of course high. Less frequently found were asthma, vasomotor rhinitis and hay fever, skin conditions, endocrine disorders, and anemia.

With the exception of syphilis and tuberculosis, the incidence of which rises in adolescence and the early adult period, and of acne and some endocrine disorders, the conditions listed are not peculiar to the high school age period.

It is clear that health supervision and adequate medical care from infancy throughout childhood and adolescence are required. A high school health program should be part of a continuing plan of child health supervision conceived as a basic public health function.

It is also apparent that programs of physical training, whatever their values, will not serve to prevent or to ameliorate, in any significant measure, the impairments of health found in the 18 and 19 year old boys examined.

The rejection rates were tabulated according to broad occupational groups. The rejection rate for farmers was nearly twice as great (41.1) as the rates for students and such occupational groups as clerical workers and craftsmen. Rates were higher for Negro than for white registrants. High school health facilities and services, as a part of the broad public health program, are therefore more urgently needed for these population groups than for others.

The Selective Service report shows that—

1. There is a considerable prevalence of health impairments in 18 and 19 year old boys.

2. The conditions found indicate a medical need rather than a lack of physical training.

3. Many of the impairments are not peculiar to adolescence, so that improved health supervision and medical care throughout childhood is indicated.

4. Services are most urgently required for our rural population and for those in low-income groups.

So many functions are often assigned to school health services that the two essential functions which are central to all others should be reemphasized, namely, (1) identification of those in need of medical and related services, and (2) appropriate and effective arrangements to help the individual get the needed services.

These two elements provide a basic pattern of health services which is essentially similar for elementary and high school pupils, but there are important differences that require careful consideration.

1. The differences in the preadolescent and the adolescent, physiological and emotional, discussed by Dr. Frank² lead to a different approach to health problems in the two groups. Characteristics of adolescent growth and development must be fully considered and understood in appraising the health of each individual adolescent.

Reference has been made, for example, to questions of unusual height in adolescent girls and boys. Unusual tallness and shortness are not significant in themselves primarily, except in their emotional implications for the adolescent. The kind of discussion he may have with a physician, and the interpretation he receives, based upon the physician's knowledge of growth and its emotional implications, may relieve the adolescent of unnecessary and perhaps handicapping distress.

Obesity (and less commonly excessive thinness) frequently have similar emotional relationships. The psychiatric problem they represent is often primary, with distortion of eating habits secondary. Here again it is evident that routine advice cannot often succeed in solving the immediate problem and certainly can offer little of lasting usefulness to the adolescent.

2. Physicians and nurses in working out plans of medical care in high school health work must make their first ap-

proach directly to the adolescent pupil himself. Whereas with elementary school pupils work with parents is the prime necessity, and great effort should be made to have the parents present when their children are examined; this is not the case with adolescents in the high school. Physicians and nurses trying to work out plans for adolescents succeed only through direct work with the pupils.

3. Health education for the adolescent can be more complete and thoroughgoing than it now is and more definitely based upon the interests that appear and express themselves at this developmental period. Since the adolescent is trying to establish his own independence and to act largely upon his own initiative, health education in high schools can be highly effective at this stage and should have continuing values for the pupil after he leaves school. With this in view the examinations of the adolescent and his interviews with physicians and nurses in the high school should be so considered and planned that they will be of value as health education. In addition, the physicians and nurses should have an important rôle in directing health education in schools in general, both in the classroom and in other relationships.

4. A large proportion of high school pupils enter work when they leave school. In many states and local jurisdictions, preemployment physical examinations are required before employment certificates are issued for those who are within the age group required to have certificates. Even for those who are beyond the age at which certificates are required, preemployment physical examinations are required by some employers.

The volume of preemployment physical examinations in connection with work certificates is considerable. In New York City in 1939, before the outbreak of World War II, approximately

50,000 examinations were made, and in 1943 over 180,000. But the value to the individual of single preemployment examinations is limited, especially in the absence of procedures for providing medical care and related services when indicated. On the other hand, if the health services in high schools were to be conducted with the problem of future employment in mind, the value to the individual could be increased. Vocational guidance and placement could be more soundly based and more effectively carried on; there would be time for provision of necessary medical care or other services; and vocational training could be arranged when indicated after the examination.

If the identification of health problems in adolescents is to be followed by appropriate action, suitable community facilities, health services, and other resources are needed.

PRIVATE PHYSICIANS

Some pupils in high schools can receive continuing care from private physicians. Only a small proportion, of course, will be under the care of fully qualified pediatricians, since the number of diplomates of the American Board of Pediatrics is only approximately 3,000, and the number of high school pupils in 1939-1940 exceeded 7 million. Medical education in the post-war period and the years following will have the task of equipping the general practitioner more satisfactorily to care for adolescents.

Such education is especially necessary for the undergraduate medical student and it should continue through the years of graduate medical training in teaching centers. Postgraduate education in this field will also be needed.

The content of such a program of education will, of course, embrace the diseases which are of great importance in adolescence, such as tuberculosis and rheumatic fever. It will include also

consideration of such conditions as goiter of puberty, cryptorchidism, and problems of growth and sexual maturation. It is equally essential that physicians should be oriented in the mental hygiene of childhood and adolescence.

Many high school children do not receive continuing care from private physicians. For them, suitable clinic facilities are necessary. In large cities this should present no serious problem, and it would be desirable to develop special clinics for adolescents separate from general outpatient departments and children's clinics. In smaller communities this may not be possible. Consideration should be given to development of itinerant pediatric clinics, held at intervals in rural and semirural areas of a state. Where such pediatric clinics are already available, and as new clinics are established, special preparation in problems of the adolescent should be arranged for staff members. Some consultation and treatment clinics for adolescents may well become teaching centers for physicians, nurses, and other professional personnel.

Other facilities and services are also needed, such as those for complete and continuing dental care. The nursing service available to high school pupils should be a general public health nursing service. Systematic plans should be made for working out social problems related to health and medical care. A high school health service (like any school health service) should develop as a part of, or in closest association with, the local health agency.

The desirable qualifications for personnel for high school health service can be briefly stated: Good basic medical and nursing training, public health experience, pediatric experience, and special interest in adolescents and ability to work well with them.

For those in senior or supervisory

positions, training and experience in public health should be stressed. For those carrying on direct service, the emphasis is upon the background in pediatrics, growth and development, and psychosomatic problems. Both supervisors and those working under them need to understand something of the principles and practices of education and to be fully aware of high school organization and policies if they are to play an effective rôle in health education.

The number of professional persons engaged in high school health work should be sufficient to give unhurried attention to each pupil, with adequate time for interviews, conferences, and follow-up work. In addition, clerical assistance is desirable, and the assistance of technicians when required for special procedures. Various ratios of pupils to nurses and to physicians have been suggested. Experience in a New York high school indicated that the equivalent of the full-time services of 1 physician and of 2 nurses per 3,000 pupils was the minimum requirement for a high school health program.

The cost of such a service as that outlined is considerable. Yet it is likely that the cost of a full program would approximate \$3 annually for each high school pupil. Compared to the cost of education, this is not a large expenditure. It was reported that for 1939-1940³ the median annual expenditure per pupil in average daily attendance in 180 city school systems was nearly \$90. For towns of 2,500 to 10,000 population, the median expenditure was \$78, and for the cities of 100,000 population or over, the expenditure was \$106. Compared to local health department budgets, however, expenditures as great as \$3 per capita annually for a relatively small group of the total population appear to be very great.

There are perhaps three possible approaches to the question of costs.

1. Cover the whole high school population with a limited type of service which could be provided within available budgets.

2. Attempt to provide a better quality of health service by limiting the number of children served in each school.

3. Attempt to provide service of good quality to all pupils in a limited number of high schools, increasing the number of schools served as funds permit.

The first possibility, that of spreading the service thin, has had a trial of 50 years in elementary schools. Its accomplishments have not been great.

The second is currently in practice in a number of school systems. It places heavy reliance upon referral of pupils by teachers, so that many pupils do not receive the educational experience of regular periodic health examinations and conferences with physicians and nurses. Although the yield of cases of well marked health impairments in proportion to the number of pupils examined is increased by this procedure, it is possible that pupils with early and slight impairments may be overlooked. This limits the contribution the health service may make to early identification of slight health impairments and to provision for caring for them.

The third possibility appears to offer the most promise in the development and expansion of health services in high schools. Since, at the present time, a large proportion of high schools have an extremely limited health service and many others have none at all, the opportunity exists to make a good beginning where and when adequate staff is available and to extend the service as rapidly as funds permit. In this way, experience gained in the first units may readily be applied in those developed later.

SUMMARY

In summary, the health problems of

the adolescent may be in part met by appropriately organized health services in high schools.

1. Such services must be founded upon a full understanding of the physiological and psychological characteristics of the adolescent.

2. The personnel must center its work primarily upon the adolescent himself in contrast to elementary school health work, where the coöperation of the parents is the prime requisite for success.

3. Health service in high schools must be characterized and accompanied by development of health education, which can be highly effective and should be of continuing value for the pupil when he leaves school.

4. High school health service can be organized to provide a sound basis for counseling, training, and placement when pupils leave high school to enter employment.

Physicians and nurses engaged in health work in high schools should be especially qualified for such work, and it is essential at the same time that suitable community health and related resources be available when needed by the high school pupil.

Finally, the cost of such service, while large in comparison with present expenditures for school health work, is only a small proportion of the total annual investment for each child's education. Rather than compromise with quality or limit the quantity of services to high school children, it is suggested that units for high school health services, adequately financed and adequately staffed, be developed where funds are available, and extended as rapidly as possible.

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Physical Fitness and Health Problems of the Adolescent

Evaluation of Adolescents' Health *

J. R. GALLAGHER, M.D.

School Physician, Department of Health, Phillips Academy, Andover, Mass.

THE Selective Service findings have, we hope, ended for once and all the neglect of health examinations in the adolescent group. These boys' apparent health, the relatively low incidence of illness in their age group, their great recuperative powers, and the latent development of interest in health rather than disease, all have been factors which account for the situation to which Colonel Rowntree¹ has called attention. Participation in a careful health examination of boys soon dispels any notion that the procedure is fruitless. Data on some 900 private preparatory school boys, members of an economically privileged group, are offered to emphasize Colonel Rowntree's figures and the points he has been making. Few of these boys would be classified 4-F, but many were not in a satisfactory, let alone optimum, state of health. About 6 per cent were either very much overweight or underweight, and at least 15 per cent more deviated considerably in this respect from what is felt to be desirable. A thorough eye examination was found to be needed by about 15 per cent. Over 80 per cent required some dental treatment—about 20 per cent requiring it urgently. A high percentage of this group had had their

tonsils removed, and yet almost all would agree that about 2 per cent would benefit by this operation. A total of 1 per cent had such correctable defects as hernias, undescended testes, or hydroceles. About 1 per cent had one or another musculoskeletal defect such as lower back strain, osteochondritis dissecans, or hammer toe. One and one-half per cent stuttered, and another 6 per cent had some degree of personality disorder. The complete findings in this group of 900 boys have been discussed and described more fully elsewhere.²

I would like to turn aside, however, from statistics showing the number of defects and deficiencies which can be uncovered and which subsequently should be corrected. These defects are important and should be corrected during or before early adolescence, but their importance should not obscure other aspects of the National Fitness Program. Our concern should not be entirely with these evidences of sickness. It should also be with the improvement of the healthy, the business of making those who are, or can be made, organically sound, more healthy, more vigorous, more functionally efficient. Discussion of the number of defects which can be found is essential and desirable, but it should not obscure our need for the achievement of more than organic soundness, our need for a state of health which demands efficient function as well.

* Presented at a Joint Session of the American School Health Association, the American Society for Research in Psychosomatic Problems, and the School Health Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.

A boy may be free of caries and have neither hernia nor heart disease nor asthma, and yet be in far from good condition: he may be without the ability to use his muscles well, have little endurance, have intelligence and knowledge but improper attitudes and ways of thinking. I do not mean that we should develop a nation of athletes or supermen, but I believe we should be concerned about the functioning of the individual after he has been put in shape—that we should fit him for, and determine his performance over, rough roads and hills, and not merely judge him at rest. To reduce the number of 4-F's is essential, but elementary. To achieve more vibrant and happy lives is a better goal. Fortunately improvement in functional efficiency is often more easily achieved, if only we will make the effort, than is improvement in the organic state.

It seems important to emphasize this increment in health over and above the correction of defects, because much will be left undone for many boys who could be shown the way to better health unless these attitudes are fully understood. Means of teaching the principles of mental hygiene need to be extended so that attitudes and ways of thinking may be improved. Schools need to devote sufficient time to vigorous exercise, health habits need to be taught, effectual facilities for exercise are essential. As part of the health record, the boy's functional status should be included. His ability to swim, his endurance, his skill in useful muscular activities, his health habits, and his adjustment should all be noted and improved.

Recently a small group of 150 boys in the 13–18 year age group were examined: the findings serve to illustrate these points. The usual number of organic defects was found, two had hernias, 25 had teeth badly in need of care, 21 required a thorough eye examination, while 33 were very much

over or under weight. It was gratifying that only one in this group had not previously been vaccinated against smallpox, that only 2 had not been previously immunized against diphtheria, and that over 50 per cent of the parents requested that tetanus toxoid be given. However, if the examination of this group stopped at this point, if no more was done than to discover and correct organic defects, much less than optimum health and function would be achieved.

It may not be the physician's job to examine various other aspects of functional fitness, but he should be interested in all of them. Thirty per cent of these boys scored poorly on a test designed to measure the efficiency of their response to brief strenuous exercise.³ Ten boys could not swim at all, and 40 per cent did not have the strength or skill properly to climb a rope.⁴ Among those who were overweight, many had little useful knowledge regarding proper methods of controlling weight, and among the underweight many had numerous faulty health habits. Properly graded and vigorous exercise improved these boys' endurance and strength, and instruction improved their swimming and other skills. Instruction and repeated observations improved their weight. The use of conferences, special instruction, sports, relaxation techniques, and other methods were helpful in modifying personality traits and attitudes. These increments in health are worth seeking. Time spent in making the sound body one which functions at optimum efficiency is not wasted.

A 15 year old boy in this group furnishes a too common example of lack of functional fitness in an organically sound body. He was said by his parents to be shy, a poor mixer, healthy but a finicky eater, nervous, and subject to indigestion. At his health examination no defects were found except one small cavity and thinness. How-

ever he seemed excessively timid, said he was unable to play games or swim but would like to learn. His recovery from a test involving strenuous exercise was poor. We found he ate rapidly, knew nothing of the relative value of food, never had made any serious attempt to gain weight, although he said he desired to do so. His posture was typical of that of a tall, shy boy. He was unable properly to do tests involving strength or special skill or to play any game with satisfaction. He had little confidence, and was embarrassed by this lack of skill at sports. Within an 8 week period he gained several pounds, learned to swim, his posture improved, his strength and endurance increased, and he learned to play an adequate game of tennis, became more confident, and gradually became entirely free of all symptoms of indigestion. To have passed over this boy, to have classified him as fit because he was organically sound, would have been to have missed a considerable opportunity to improve his health.

We should require a thorough health examination of all adolescents and a

systematic follow-up to insure the subsequent correction of those defects which can be remedied.⁵ All known methods to prevent the development of illness or defects should be utilized, and in order that those who are organically sound may have more vibrant health and lead more effective lives, every effort should be made to improve their functional fitness. The elimination of unfavorable health habits and attitudes, the development of strength and skill and endurance, and the correction of minor defects which, although not incapacitating, affect the individual's total health, are all important if optimum functional fitness is to be obtained.

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New York Acquires Site for Health Center

An agreement was signed by Mayor LaGuardia on May 14 whereby the City of New York will acquire title to property on Riverside Drive for a new health center and hospital.

On the site the city will erect a 300 bed hospital for treatment of communicable and tropical diseases. A public health center will include a diagnostic laboratory for the Public Health Research Institute, formed several years

ago under an agreement with the city, and a public health school to be operated in connection with the Columbia University Medical School.

Funds for the two buildings are incorporated in the present capital budget, which allocates \$2,690,000 in federal and city funds for the public health laboratory, research and teaching center and another \$2,200,000 in anticipated federal funds for the hospital.

An Appraisal of a National Program for Medical Care

(After Ample Opportunity to Study the Proposals)

W. G. SMILLIE, M.D., F.A.P.H.A.

*Department of Public Health and Preventive Medicine, Cornell University
Medical College, New York, N. Y.*

A SUBCOMMITTEE on Medical Care, of the Committee on Administrative Practice of the American Public Health Association, prepared a preliminary "Report on a National Program for Medical Care"¹ which was published in the September, 1944, issue of the American Journal of Public Health, "*in order that the entire membership of the American Public Health Association might have ample opportunity to study the proposals in advance of formal action.*" [Italics are mine.] Within a month after the report was published, it was accepted by the Committee on Administrative Practice, and adopted by the Governing Council of the American Public Health Association at its Annual Meeting on October 5, 1944. It was republished (with a few small changes) as an official statement of the American Public Health Association in the December, 1944, issue of the *American Journal of Public Health*.²

This program, which has been adopted for the entire membership of the Association as a body, by its Governing Council (without opportunity for general consideration and a full discussion), represents a revolution in nation-wide social policy. Its implications reach deeply into the very foundations of our national life. The program, if it is instituted as set forth in the report, will affect materially the

mode of life of every living person in the nation, and will have a still more profound effect on unborn generations. Thus, even though this hastily proposed plan has been adopted by the Governing Council as Association policy, it would seem that further consideration of its elements, and *their implications*, is desirable.

The report, in its final form, is divided into 3 parts: A. The Needs, B. The Objectives, C. Recommendations.

Part A

Part A analyzes and summarizes the present situation in relation to provision for medical care in various parts of the nation. It sets forth the existing needs for adequate medical care clearly, comprehensively, and effectively.

Part B

There can be very little disagreement with Part B of the Report, which relates to the objectives of a nationwide plan for medical care. They are stated succinctly and with broad foresight.

Part C

Part C consists of recommendations for immediate action. The majority of the Governing Council voted in favor of these recommendations, and it is

quite possible that "the majority of the members of the Association who have expressed themselves are in favor of the plan."³

If this is true, then I gravely doubt whether these members have really thought the plan through, have understood the implications of these recommendations, and have given consideration to the situation that would develop if this program were carried to completion.

The plan, in brief, is based upon the following principles:

1. "A single responsible agency is a fundamental requisite to effective administration of the plan *at all levels*;—federal, state, and local." [Italics are mine.]

2. The services should be financed on a nation-wide basis.

3. Adequate support for the plan will be secured "through social insurance, supplemented by general taxation; or by general taxation alone."

Thus the plan is a comprehensive, compulsory program for complete medical care in all its aspects—curative as well as preventive—for all the people of the United States. Under the plan, the provision for medical care throughout the nation shall be organized and administered by a central agency of the federal government. This administrative machinery shall extend down through the social fabric, through states, to counties, to large municipalities, to towns, to villages, and out into the rural areas, throughout the whole nation. The program will be financed by a central source of funds which will be collected by compulsory contributions, and its administration will be imposed upon all the people, quite irrespective of local community opinions or desire.

In European governments, with a strong central organization, a type of administration that extends its tentacles from the central governing body down through all the minor units of government, and into the towns and local communities, until it invades the homes

of every private citizen, is called "bureaucracy." It may be argued that Denmark and Sweden are illustrations of progressive, democratic European countries that have instituted systems of national medical care, with excellent results. The comparison is not a valid one. The United States is not a single sovereign power, but 48 separate and quite different heterogeneous states with widely divergent types of population, systems of government, and modes of life.

Those who favor the plan may insist that local community rights and opinions will be given every consideration. Local autonomy is specifically excluded from any part of the original program. However, in its final form in the December issue of the *Journal*, a qualifying clause was inserted:

Recommendation 1, part c—"In so far as may be consistent with the requirement of a national plan, states and communities should have wide latitude in adapting their services and methods of administration to local needs and conditions." [Italics are mine.]

If administration of services is the function of a *single responsible agency at all levels*—federal, state, and local—as stated in Recommendation III, part a, then local communities can have no autonomy, no outlet for initiative, no chance for expression of local opinion as to local needs, no opportunity to formulate local policies.

It is an axiom that the principle of local self-government is the very core of our national strength. This principle is so fundamental to individual and family life that we can conceive of no other type of existence. We are so accustomed to it that we forget its essential components, and we are quite vulnerable to encroachment, because we take these things so for granted.

Our governmental concept is, basically, *local self-government*, simple and representative. There is a larger unit, the State, which is the sovereign power,

and which does the will of the people. The federal government has limited powers only, that are granted by the states. These federal powers relate to those matters that are of interstate import. As the nation has grown, and particularly during periods of great emergency and stress, such as world wars and world-wide depression, the federal government has been granted emergency powers of wide scope. This is an unfortunate concomitant of great emergencies. But these facts do not modify the principle that local self-government is the keystone of our democracy.

Why is it necessary to restate here these elementary principles of civics that were learned in childhood? What have they to do with a national program for medical care?

Let us examine the program closely. Does it build local autonomy, and local community participation, into the structure of the plan as a keystone?

Throughout the recommendations, the plan insists upon a single, enormous, central administrative body. Local health agencies are mentioned only twice—in each instance to point out that they shall be submerged and eliminated as independent bodies. Local health services are specifically mentioned in the following clauses of the report:

Recommendation III, part a—"A single responsible agency is requisite to effective administration at all levels—federal, state, and local."

Recommendation V, part a—"The activities of the multiple national, state, and local health agencies should be coordinated with the services provided for by a national program. There is no . . . administrative justification for dividing human beings . . . into many categories to be dealt with by numerous independent administrations."

Those members of the subcommittee who aided in drafting the plan, and who discuss its administration in the De-

cember issue of the *Journal*, are at variance in their interpretation of its meaning.

Dr. Mountin⁴ first points out that the "intemperate support of limited remedial measures by partisan groups" has required that some responsible agency shall step in and give technical direction to the public movement for better medical care.

A captious critic might suggest that we, as public health administrators, may be accused of self interest, bias, and partisanship, since it is claimed throughout the report that we are obviously the only suitable persons to be chosen to organize and administer this program for national medical care.

Dr. Mountin, in one sentence, recognizes "the desirability of decentralized operations, with participation by state and local authorities." But in the next sentence he states that "an unrelated series of state and local plans cannot assume a suitable service [which is] national in scope. Only the federal government through its broad powers of taxation can compensate for those differences in income which exist among individuals and lesser units of government."

Later Dr. Mountin states that the subcommittee believes that local health agencies should take a prominent part in the administration of health care. Existing local political boundaries will be dissolved. A new local jurisdiction will be formed which will be constituted of "natural lines of trade area." These may not be confined to a given state, but may extend to extra-state zones. Each state will be divided into suitable administrative jurisdictions, and the whole financed through a system of federal taxation and social security contributions. This plan may provide for decentralized administration, but it does not provide for local autonomy. Rather, it incorporates local self-government under federal jurisdiction.

Dr. Sinai⁵ passes by the whole administrative problem lightly. He states that much time will doubtless be spent in debate upon relationships between the federal and state governments in a scheme of national health. This matter, he says, is a subject which should not preoccupy us. Broad policy making, according to Dr. Sinai, must be the responsibility of the federal or the state government: "detailed administration must be centered where the people live, and must be related to local conditions and needs." He believes that "local administration of finances is not a necessary accompaniment of local administration of services." The implications of this type of organization are perfectly clear to an experienced administrator. It is the very antithesis of our conception of local self-government.

Dr. Hege,⁶ who is an experienced local health officer, has an entirely different conception of a national program for medical care from the others participating in the discussion. He assumes that the primary administrative responsibility for operation of the health care program will lie *within the state*. He insists that "there must be *decentralized control* of health services, that the people of each area must have a good deal of choice as to what their health service shall be and how it shall be administered."

He also points out that the program should develop slowly, over a long period of time. Different types of administration should be set up in different communities to meet local need: "for we shall learn by doing." "The final answers to administrative problems throughout the nation will not be uniform."

If Dr. Hege's interpretation of the National Program for Medical Care is a correct one, then one can have little fault to find with it. But it is not the program as it is presented to the readers of the *Journal*. Perhaps, after all, the

program doesn't mean what the words say.

A member of the Governing Council who has read this manuscript insists that the plan does not mean what it says, and that the real intent of this program is the establishment of a *single responsible agency at each level*—federal, state, and local. Thus, federal administrative responsibility for the plan would not be divided between The Children's Bureau of the Department of Labor, the United States Public Health Service, the Farm Security Administration, and other varied federal agencies, but would be centered in a single national Department of Health and Welfare, with a director who would have the status of a cabinet member.

Similarly, a single governmental agency would administer the funds at the state level, and at the local level as well. Each of these local administrative bodies would be autonomous, but their activities would be coordinated with those of the state and the federal agencies. But how much autonomy is left to the local community, if it has no responsibility for financing the program, no direct control of budgetary allotments, no voice in determination of broad general policy?

The program as actually presented in the report is as follows:

The Federal Government, with some state participation, collects and distributes the funds for the medical services for the nation as a whole. This is accomplished by a tremendous bureaucratic machine which coordinates all medical services of whatever nature, in every community in the land, down to the last physician, nurse, local hospital, and local health center. All public health activities, as well as all medical and hospital services, will be under the direct administration of "a single responsible agency."

Under a plan of this type, local agencies for provision of medical care, and local health departments also, will not be autonomous, independent, participating, representative governmental units, but will be subservient to the federal overall plan; dependent upon it for local policies, for selection of personnel, for formulation of programs, and completely dependent upon it for funds. This is not a stimulation of local self-government, but engulfment. It is not independence, but elimination of local community initiative and local responsibility.

The state health departments, as well as other state agencies that are now empowered to furnish medical and public health care, fare no better under the plan than do the health services and medical care facilities of local communities. They become, in fact, branches or subdivisions of a central agency—distributors of the funds of the federal collecting and distributing body.

The respective states are asked to make a study of their local needs, and to promulgate a state-wide master medical care program, which, on a long-term basis, will eventually meet the local community needs, in so far as they may be foreseen. It is also suggested that states may be permitted to participate in the financing of the plan.

But the collection and distribution of the mammoth medical care fund is in the hands of the national body, "a single responsible agency," which obviously holds veto power over all state, as well as local community personnel, plans, or new proposals.

SUMMARY

The National Program for Medical Care was adopted by the Governing Council of the Association, without ample time for assimilation or analysis. It was made a general policy of the Association, without an opportunity for the membership of the Association to

consider the matter carefully, and with all its implications.

The program provides for an enormous central federal administrative agency which imposes upon the whole American people a program of compulsory, contributory medical care which will encompass all facilities for public health, preventive medicine, epidemiology, industrial hygiene, child health protection, together with all phases of hospital care, physician care, nursing care, convalescent home care, rehabilitation, care of chronic illness, care of infectious diseases, care of mental illness, and a thousand other details relating to medical care and to public health and public welfare. All this is provided for, without consideration for the fundamental principles of local self-government, wherein lies the elementary strength and basic power of our American mode of life.

It would seem to be more appropriate, in planning for the development of a nation-wide program for medical care, to utilize the genius of the American people for local self-government, to employ the enormous latent forces of voluntary coöperative enterprise, to develop a medical care program slowly and progressively on a local community basis, building on the sound foundation of local community autonomy, with state guidance, and with state assistance when necessary; and with federal encouragement by subsidy to those communities in greatest need.

It is quite possible that I have not interpreted the basic purposes and intent of this report correctly, and that local autonomy will become the cornerstone upon which a national program for medical care will be built. Perhaps some may feel that local autonomy is not an essential part of a nation-wide medical care program. In any case, further discussion in the *American Journal of Public Health* of the plan,

and of its full implications, seems most desirable.

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Diphtheria Epidemics in Europe

According to a release from the United Nations Relief and Rehabilitation Administration, Washington, diphtheria during the last three years has broken all bounds in Northern and Central Europe and has become the leading epidemic disease. The increase in Germany is quoted as from 49,000 cases in 1927 to 238,400 cases in 1943. The report states that a virulent type of diphtheria "not yielding to serum treatment" had spread in Germany. The case fatality was said to have increased from 3.5 per cent in 1938 to over 6 per cent in 1943. Cases among adults became frequent and cases appeared in the German Army as a fatal complication of chest wounds.

Explosive epidemics are said to have occurred in Norway, the Netherlands, Belgium, Northern France, and Czechoslovakia. During the last three years there are said to have been nearly

50,000 cases in Norway and about 150,000 cases in the Netherlands, with three times the population of Norway. In the Netherlands "death from diphtheria now runs barely behind the mortality from tuberculosis in spite of the increase of the latter disease." No increase was noted in Great Britain or in Hungary.

The epidemic reporting service carried on before the war by the International Office of Public Health in Paris has now been resumed with UNRRA assuming full responsibility for disseminating this information. The *Epidemiological Information Bulletin* summarizes the data received under the Sanitary Conventions from member governments.

This service is part of UNRRA's task in the administration of the revised sanitary and aerial navigation conventions.

Sickness as an Index of the Need for Health Supervision of the School Child*

JEAN DOWNES, F.A.P.H.A.

The Milbank Memorial Fund, New York, N. Y.

THE school health administrator desires improvement in the present procedures for discovering the child who needs correction or treatment of important conditions. Efforts have been made to improve the medical examination of the school child and to supplement it with more frequent inspections by teachers and nurses, and by referring conditions thus discovered for special medical examination.

Another supplementary method which has been suggested by Collins is a current record of absence from school on account of sickness.¹ He has pointed out the possible uses of such records as follows:

The school sickness record would serve the double purpose of a continuous record of the health of the child and a criterion for referring children for special examination. Any child who suffers frequent attacks of illness which entail absence from school may well be referred for examination, even though the condition is only headache, for it will enable the physician to discover in their early and preventable stages physical impairments which otherwise might be serious.

It is the purpose of this paper to discuss various indices which the sickness record of the school age child affords as a means of selecting those in greatest need of medical and public health supervision.

A study of illness over a period of years in a relatively small population composed of family units offers an opportunity for observation of morbidity among school age children and their families. One part of this report presents the illness experienced during a 12 month period, June, 1939–May, 1940, by the 1,060 children of school age (5–18 years) in families observed for sickness. In the latter part of the report, data for children from families observed 3 to 5 years are analyzed.

White families living in thirty-five city blocks in the Eastern Health District of Baltimore formed the sample population observed for illness. The records of "illness" are of sickness reported by the household informant (usually the housewife) as she observed them in her family. The records of illness were obtained from the family at monthly intervals by a small group of trained enumerators. Special effort was made to obtain complete reports of illness.

For all cases of illness a record was made of the nature of medical service received and whether rendered by a private physician, clinic, or hospital. The causes of illness as reported by the family informants were submitted to the attending physicians for confirmation or correction. The causes of illness for clinic attendance and hospital admissions were also checked against the records of the clinic or hospital where the service was given.

* Presented at a Joint Session of the School Health and Vital Statistics Sections of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

From preliminary analyses of data from the first two years of study the sample population was found to be representative of the white population of the district with respect to age constitution and size of household.

The incidence of illness among school age children may vary from year to year since it will be affected by the presence or absence of outbreaks of the acute communicable diseases and of epidemics of influenza. In the particular year studied there were no unusual outbreaks of communicable disease or of influenza. For example, among the 1,060 children there were 26 cases of chicken pox, 5 cases of whooping cough, 1 of mumps, and 2 of scarlet fever. After some study of the illness of the school age child it was decided to exclude from the analysis all attacks of acute communicable diseases and attacks of infectious skin conditions, such as impetigo, ringworm, and scabies. Tonsillectomies were also excluded. The exclusion of these illnesses was

based on the assumption that, with the exception of tonsillectomies, these conditions do not select the sickly child for attack, and their inclusion as a part of the sickness record does not necessarily aid in indicating the children below par who need special attention. It is assumed also that those administering school health programs have policies and procedures for follow-up of the child who has just recovered from an acute communicable disease and for obtaining correction of infectious skin conditions.

The annual age incidence of illness among children of school age in the families studied was similar to the rates by age noted in other studies of morbidity.^{2,3} As shown in Table 1, the rates were highest at the younger ages and declined sharply as age increased. This was true for disabling and bed illness as well as for illness by cause. The rate of illness from all causes was slightly more than twice as high among children 5-7 years of age as it was for

TABLE 1

*Incidence of Illness per 1,000 Population by Age and Cause Among School Age Children, June, 1939-May, 1940 **

| Age Group | Rate per 1,000 Population | | | | Population |
|-----------|---------------------------|---------------------|-------------------|------------------|------------|
| | Cause of Illness | | | | |
| | All Illness | Respiratory Illness | Accidents | All Other Causes | |
| | | | All Illness | | |
| All ages | 1,192 | 718 | 139 | 335 | 1,049 |
| 5-7 | 1,988 | 1,114 | 234 | 641 | 167 |
| 8-11 | 1,318 | 836 | 150 | 332 | 280 |
| 12-15 | 964 | 695 | 128 | 231 | 329 |
| 16-18 | 850 | 491 | 84 | 275 | 273 |
| | | | Disabling Illness | | |
| All ages | 656 | 186 | 36 | 434 | 1,049 |
| 5-7 | 1,234 | 299 | 60 | 874 | 167 |
| 8-11 | 732 | 268 | 21 | 443 | 280 |
| 12-15 | 523 | 140 | 40 | 344 | 329 |
| 16-18 | 365 | 88 | 33 | 264 | 273 |
| | | | Bed Illness | | |
| All ages | 302 | 218 | 9.5 | 74.4 | 1,049 |
| 5-7 | 603 | 363 | 21.0 | 197.6 | 167 |
| 8-11 | 289 | 229 | - | 60.7 | 280 |
| 12-15 | 246 | 193 | 15.2 | 33.4 | 329 |
| 16-18 | 199 | 132 | 3.7 | 62.3 | 273 |

* Attacks of acute communicable diseases, infectious skin conditions (ringworm, scabies, and impetigo), and tonsillectomies are excluded.

Children disabled with chronic disease throughout the year are excluded from the population.

TABLE 2

*Distribution of Illnesses by Cause and Age Among School Children, June, 1939-May, 1940 **

| Classification of Illness | Age Group | | | | Age Group | | | |
|-----------------------------|-----------|-------|-------|-------|-----------|------|-------|-------|
| | 5-7 | 8-11 | 12-15 | 16-18 | 5-7 | 8-11 | 12-15 | 16-18 |
| | Per cent | | | | Number | | | |
| All illness | 100.0 | 100.0 | 100.0 | 100.0 | 332 | 369 | 317 | 232 |
| Colds and grippe | 49.4 | 52.5 | 50.5 | 46.0 | 164 | 194 | 160 | 107 |
| Tonsillitis and sore throat | 6.0 | 7.9 | 10.1 | 9.1 | 20 | 29 | 32 | 21 |
| Otitis media and earache | 5.7 | 2.7 | 1.9 | 3.9 | 19 | 10 | 6 | 9 |
| Pneumonia | 0.6 | 1.4 | 0.9 | 0.9 | 2 | 5 | 3 | 2 |
| Asthma | 0 | 1.6 | 1.3 | 1.7 | 0 | 6 | 4 | 4 |
| Diseases of eye | 3.6 | 1.9 | 0.6 | 2.6 | 12 | 7 | 2 | 6 |
| Digestive | 11.2 | 8.9 | 7.9 | 9.1 | 37 | 33 | 25 | 21 |
| Headache | 1.2 | 1.4 | 1.9 | 1.3 | 4 | 5 | 6 | 3 |
| Boils | 0.6 | 0.3 | 1.3 | 1.7 | 2 | 1 | 4 | 4 |
| Nervousness | 0.9 | 1.1 | 0.3 | 0.4 | 3 | 4 | 1 | 1 |
| Accidents | 11.8 | 11.4 | 13.2 | 9.9 | 39 | 42 | 42 | 23 |
| Other and ill-defined | 9.0 | 8.9 | 10.1 | 13.4 | 30 | 33 | 32 | 31 |

* Attacks of acute communicable diseases, infectious skin conditions (ringworm, impetigo, and scabies), and tonsillectomies are excluded.

Children disabled with chronic disease throughout the year are excluded from the population.

those aged 16-18. The average number of illnesses by age group was from about one to two per child.

The percentage distribution of illnesses by cause was generally similar for the four age groups (Table 2). From 46 to 53 per cent of the total illnesses were due to grippe and colds. Accidents were next in order of importance as a cause of illness, followed by digestive conditions, tonsillitis and sore throat, and otitis media and earache. Children aged 12-15 had a slightly higher proportion of their illnesses due to tonsillitis and sore throat than to digestive conditions.

The occurrence of chronic illness among school age children is certainly a matter of concern to those engaged in school health work. Table 3 shows the prevalence of chronic illness at the beginning of the study year, the incidence

of new cases during the year, and the total prevalence for the 12 month period. There is a striking difference between the age curve of prevalence of cases diagnosed previous to the study year and the age curve of incidence of new cases first diagnosed during the study year. The ages of highest prevalence were 12-15 and those of highest incidence were at 5-7 years. Both the prevalence and the incidence rates are composed chiefly of cases of rheumatic fever or rheumatic heart disease.* In all, about 5 per cent of the children 5-18 had a chronic illness, and 22 per cent of the total chronic cases were totally disabled, that is, not able

* There were 25 cases of rheumatic fever or rheumatic heart disease, 10 cases classed as "nervousness," 7 of asthma, 2 cases of hernia, 1 of Perthes' disease, 1 of brain tumor, 1 of chronic nephritis and hypertension, 1 case of anemia, 1 of Hirschsprung's disease, and 1 case of blue sclera and brittle bones.

TABLE 3

Chronic Illness Among School Age Children, June, 1939-May, 1940

| Age Group | Population | Rate per 1,000 | | | Number of Cases | | |
|-----------|------------|---------------------------------|----------------------------|----------------|---------------------------------|----------------------------|-------------|
| | | Diagnosed Previous to 1939-1940 | Diagnosed During 1939-1940 | Total for Year | Diagnosed Previous to 1939-1940 | Diagnosed During 1939-1940 | Total Cases |
| All ages | 1,060 | 38.7 | 8.8 | 47.2 | 41 | 9 | 50 |
| 5-7 | 167 | 35.9 | 24.8 | 59.9 | 6 | 4 | 10 |
| 8-11 | 285 | 42.1 | 11.0 | 52.6 | 12 | 3 | 15 |
| 12-15 | 333 | 51.1 | 3.2 | 54.1 | 17 | 1 | 18 |
| 16-18 | 275 | 21.8 | 3.7 | 25.5 | 6 | 1 | 7 |

to attend school during the study year.

A sickness record of the individual school age child affords several indices for selection of those most in need of medical and public health supervision. They are (1) frequency of attack of types of illnesses which may lead to chronic illness; (2) frequency of illness of unusual duration; (3) frequency of disabling illness; and (4) frequency of attacks of all illness of the individual child without regard to type of illness, duration, or disability.

Illnesses which may have serious consequences in that they may result in chronic illness are: frequent attacks of tonsillitis, of disabling sore throat, of otitis media, of bronchitis, and of chest colds. Eleven per cent of the 1,049 children had one or more attacks of these illnesses. The tendency for repeated attacks is apparent from the fact that 86 per cent of those suffering such illnesses had two or more attacks during the year. Children selected for special medical attention on the basis of these particular illnesses may well be considered a sickly group.

Illnesses of unusual duration are defined here as illnesses with a duration of 32 days or longer without regard to whether the illness was disabling. It was thought that in the case of even minor illnesses, a slow recovery as evi-

denced by a long duration might indicate a child considerably under par and in need of medical attention. Application of this criterion to the total children studied selected 8 per cent; these children also showed a tendency to repeated attacks of illness with a slow recovery; 77 per cent had two or more such illnesses during the year.

Application of these two criteria of sickness, that is, illnesses that may have serious consequences and those of unusual duration, selected in all 201, or 19 per cent of the total school age children, as probably needing special health supervision. These children constituted 37 per cent of those 5-7 years of age; 17 per cent at 8-11; 16 per cent at ages 12-15; and 14 per cent of the children 16-18 years of age.

Frequency of illness of the individual child without special regard to cause, duration, or disability has also been used as a possible indication of the need for preventive medical care. Table 4 shows the proportions of the total school age population having no illness, one illness, two illnesses, and three or more illnesses during the 12 month period of study. The proportion with no illness increases as age increases; from 23 to 55 per cent were in this class; the proportions with only one illness are fairly similar for the various

TABLE 4
*Distribution of Children According to Illness Class, June, 1939-May, 1940 **

| Age Group | Total Persons | No Illness | One Illness Only
Per cent | Two Illnesses Only | Three or More Illnesses |
|-----------|---------------|------------|------------------------------|--------------------|-------------------------|
| All ages | 100.0 | 44.0 | 24.6 | 14.6 | 16.8 |
| 5-7 | 100.0 | 22.8 | 22.2 | 23.9 | 31.1 |
| 8-11 | 100.0 | 37.9 | 25.7 | 16.8 | 19.6 |
| 12-15 | 100.0 | 51.3 | 22.5 | 13.4 | 12.8 |
| 16-18 | 100.0 | 54.6 | 27.5 | 8.0 | 9.9 |
| | | | Number | | |
| All ages | 1,049 | 462 | 258 | 153 | 176 |
| 5-7 | 167 | 38 | 37 | 40 | 52 |
| 8-11 | 289 | 106 | 72 | 47 | 55 |
| 12-15 | 320 | 169 | 74 | 41 | 41 |
| 16-18 | 273 | 149 | 75 | 22 | 27 |

* Attacks of acute communicable diseases, infectious skin conditions (ringworm, impetigo, and scabies), and tonsillectomies are excluded.

Children disabled with chronic disease throughout the year are excluded from the population.

age groups, from 22 to 28 per cent. The proportions with two or three illnesses are highest at the youngest ages and decline sharply as age increases.

It is interesting to note that when the illnesses suffered by each of the three groups of children (one illness, two illnesses, and three or more illnesses) are classified according to various indications of severity, there was very little difference between the groups. Table 5 shows for each group the proportion of the total illnesses that were reported: (1) as disabling; (2) as requiring a period in bed; and (3) as having medical care. The striking point brought out by the table is that, regardless of the level or frequency of illness of the children in each of the three classes, there was so little difference in severity of illness when severity is judged by disability, bed, or medical care for illness. From 51 to 56 per cent of the illnesses suffered by children of all ages in each group were disabling; from 24 to 26 per cent were bed illnesses; and cases which had medical

care included from 29 to 32 per cent of the total in each sickness category.

If the occurrence of a disabling illness were used as a criterion for selection of children needing special attention, 51 per cent of all children in the one-illness group, 76 per cent of those in the two-illness group, and 90 per cent of those in the three-or-more-illness group would be included. If a bed illness were used as an index, 24 per cent, 43, and 59 per cent of the total children in each of the three groups, respectively, would be included. An illness requiring medical care would select 29 per cent from the one-sickness group, 45 per cent from the two-sickness group, and 71 per cent of the children in the three-or-more-illness group. It is apparent that for the individual child the greater the frequency of illness the greater are the chances of disabling illness, bed illness, or illness requiring medical care.

It appears that frequency of illness suffered by the individual child is probably the best way of selecting those in particular need of public health and

TABLE 5
*Distribution of Illnesses According to Severity for Children Classified by Frequency of Illness, June, 1939-May, 1940 **

| Age Group | Classification of Illness | | | Number of Illnesses
(All Classes) |
|---------------------------------------|--------------------------------|----------------|--------------------------------|--------------------------------------|
| | Disabling
Illness | Bed
Illness | Illness Having
Medical Care | |
| | Children With Only One Illness | | | |
| All ages | 50.8 | 24.0 | 29.1 | 258 |
| 5-7 | 54.1 | 18.9 | 27.0 | 37 |
| 8-11 | 55.5 | 25.0 | 27.8 | 72 |
| 12-15 | 54.1 | 27.0 | 29.7 | 74 |
| 16-18 | 41.3 | 22.7 | 30.7 | 75 |
| Children With Only Two Illnesses | | | | |
| All ages | 55.5 | 26.1 | 30.7 | 306 |
| 5-7 | 65.0 | 32.5 | 38.8 | 80 |
| 8-11 | 54.3 | 23.4 | 35.1 | 94 |
| 12-15 | 54.5 | 23.9 | 17.0 | 88 |
| 16-18 | 43.2 | 25.0 | 34.1 | 44 |
| Children With Three or More Illnesses | | | | |
| All ages | 56.4 | 25.5 | 32.1 | 686 |
| 5-7 | 62.3 | 31.6 | 38.6 | 215 |
| 8-11 | 56.2 | 20.2 | 26.6 | 203 |
| 12-15 | 54.2 | 25.8 | 32.9 | 155 |
| 16-18 | 48.7 | 23.0 | 28.3 | 113 |

* Attacks of acute communicable diseases, infectious skin conditions (ringworm, impetigo, and scabies), and tonsillectomies are excluded.

Children disabled with chronic disease throughout the year are excluded from the population.

medical care. It may be assumed that on the average the child who suffered three or more illnesses during a 12 month period was in poorer general health than the child who had only one illness. It is of interest to state at this point that 8 of the 9 new cases of chronic illness came from the group of children suffering three or more illnesses; and a single case came from the one-illness group of children.

A question that may be asked is: Does the child suffering three or more illnesses represent a unique or individual condition or is his illness a reflection of a sickly family? This question was studied by using a child from each of four illness categories as index cases and observing the illness of the other child members or school age siblings in the family.

The study of family illness included a sample of 214 families observed from 3 to 5 years.* In all of these families there was a school age child present during the study year, June, 1939–May, 1940. In 58 of the families the index case, that is, the child who brought the family into the study, had no illness during the study year; in 55 families the index case had one illness; in 38 the index case had only two illnesses; and in 63 families the index case had three or more illnesses.†

Table 6 shows the illness rates during the entire period of observation (from 3 to 5 years) among school age siblings of the index case in each of the four groups of families. Index cases and their illnesses are excluded. School age

children in families selected on the basis of a child who suffered three or more illnesses during the study year had an annual incidence of illness of 1,770 per 1,000 children per year. This rate was almost twice as high as the rate, 951, in families where the index case was selected on the basis of only two illnesses. In families where the index case had only one illness, the annual morbidity rate for other children in the family was 531 and in the "no illness" group the rate was 253 per 1,000 per year.‡ It is apparent that selection of the index case, a school age child, according to very frequent illness, is apt to reveal a family background of ill health of school age children. The illness suffered by one child often reflects the state of health of other children in the family.

Table 6 also shows the rate of disabling illness, the combined rate of illness from tonsillitis, otitis media, bronchitis, and disabling sore throat, and the incidence of illnesses of long duration (32 days or longer) for the school age sibling population of the families in each of the four categories. In each instance the relationship of these illness rates in the four family groups is similar to that noted for all illness.

On the basis of the rates shown in Table 6, it would seem that the children in the families in the two sickness categories, those suffering three or more illnesses and those having at least two illnesses during the year 1939–1940, were in greater need of public health and preventive medical care than were those in the other sickness categories.

The fact that illnesses which may result in chronic conditions or impairments and also illnesses of unusual duration (32 days or longer) occurred

*The sample of 214 families were families in which there were one or more cases of chronic illness. Previous analyses^{4,5} have shown that chronic disease patients in middle and old age and their families have a higher rate of sickness than do other persons and families in the general population.

†Thirty-one of the 58 families (index case—no illness) were families in which there was only one child of school age; 31 of the 55 families (index case—one illness), 14 of the 38 families (index case—two illnesses), and 26 of the 63 families (index case—three illnesses) also had only one child of school age.

‡In the families, index case—no illness, the siblings of school age were somewhat weighted by those 12 years of age or over. In the other three family groups the age distribution of the siblings was fairly comparable.

TABLE 6

*Illness Rates Among School Age Siblings in Families Classified According to the Frequency of Illness of the Index Case * †*

| Classification of Family | Rate per 1,000 Persons per Year | | | | Years of Observation
June, 1938—
May, 1943 |
|---|---------------------------------|----------------------|---|--|--|
| | All
Illness | Disabling
Illness | Tonsillitis,
Disabling
Sore Throat,
Ear Conditions,
Bronchitis and
Chest Colds | Illness
Having a
Duration of
32 Days or
Longer | |
| Index case had three or more illnesses—June, 1939—May, 1940 | 1,770 | 912 | 497 | 23.3 | 296 |
| Index case had two illnesses—June, 1939—May, 1940 | 951 | 438 | 222 | 7.4 | 162 |
| Index case had one illness—June, 1939—May, 1940 | 531 | 258 | 134 | 4.6 | 194 |
| Index case had no illness—June, 1939—May, 1940 | 253 | 137 | 62 | 0 | 146 |

* Index cases are excluded from the population.

† Attacks of acute communicable diseases, infectious skin conditions (ringworm, impetigo and scabies), and tonsillectomies are excluded.

with the greatest frequency among school age siblings in families where the index case had two or three or more illnesses during the study year, deserves special emphasis. Evidently families most in need of child health guidance can be selected on the basis of frequency of illness of a child in the family.

Table 6 has brought out important differences with respect to illness of school age children in the four different family groups. From these data the inference may be drawn that children in the same family tend to follow a similar pattern with respect to frequency of illness. This inference from average illness rates for four groups of families may be investigated further to obtain evidence on two questions: (1) Are

children in individual families characterized by higher or lower than average illness rates over a period of years? (2) Do children who have a relatively high level of illness in one year tend to be more or less continuously sickly over a period of time?

The first question has been studied by an analysis of the variation among families in the total illness reported for school age siblings over a period of 3 years, June, 1938—May, 1941. Table 7 shows the variance in illness in 30 families having only 2 school age children in each, and in 11 families having only 3 school-age children in each. In both instances (two-child families and three-child families) the mean 3 year illness rates for families have a variance significantly greater than is to be ex-

TABLE 7

Variance in Illness of Children in Thirty Two-child Families (Three Years of Observation)

| Source of Variation | Degrees of
Freedom | Sum of
Squares | Mean
Square | Variance
Ratio (F) | P * |
|---------------------|-----------------------|-------------------|----------------|-----------------------|------|
| Total | 59 | 757.65 | 12.84 | | |
| Among family means | 29 | 570.15 | 19.66 | 3.15 | <.01 |
| Within families | 30 | 187.50 | 6.25 | | |

Eleven Three-child Families (Three Years of Observation)

| | | | | | |
|--------------------|----|--------|-------|------|------|
| Total | 32 | 490.91 | 15.34 | | |
| Among family means | 10 | 368.24 | 36.82 | 6.60 | <.01 |
| Within families | 22 | 122.67 | 5.58 | | |

* P gives the probability with which differences equal to or exceeding those observed might arise through chance.

TABLE 8
Variance in Illness of Children Over a Period of Five Years

| <i>Source of Variation</i> | <i>Degrees of Freedom</i> | <i>Sum of Squares</i> | <i>Mean Square</i> | <i>Variance Ratio (F)</i> | <i>P *</i> |
|---|---------------------------|-----------------------|--------------------|---------------------------|------------|
| <i>Thirty-six Children 5-7 Years of Age</i> | | | | | |
| Total | 179 | 622.55 | | | |
| Among children | 35 | 344.55 | 9.84 | 5.10 | <.01 |
| Within years | 144 | 278.00 | 1.93 | | |
| <i>Sixty-one Children 8-11 Years of Age</i> | | | | | |
| Total | 304 | 597.14 | | | |
| Among children | 60 | 266.74 | 4.44 | 3.29 | <.01 |
| Within years | 244 | 330.40 | 1.35 | | |
| <i>Seventy-nine Children 12-15 Years of Age</i> | | | | | |
| Total | 394 | 656.04 | | | |
| Among children | 78 | 288.84 | 3.70 | 3.19 | <.01 |
| Within years | 316 | 367.19 | 1.16 | | |

* P gives the probability with which differences equal to or exceeding those observed might arise through chance.

pected from the variation within families. The statistical probability is less than one chance in a hundred that the observed variation among families would occur if family differences were due to random sampling of a child population with the variance of illness rates between siblings in the same family. Thus it may be concluded that there were sickly families and healthy families and that individual children in particular families did tend to have somewhat similar illness rates over a 3 year period.

The degree of association in the frequency of illness of siblings in the 30 families with 2 school children has been measured by the coefficient of correlation. The coefficient, $+0.56$, is statistically significant and indicates a moderate degree of association, but does not indicate a high predictive value.

The second question has been studied by further analysis of the variation in attacks of illness from year to year. Five years' observation of sickness, from June, 1938-May, 1943, are available for 36 children aged 5-7, 61 children aged 8-11, and 79 children aged 12-15.* When there were two or more children in the same family in the same age group only one child was included.

This was done so that children from a few families could not weight a particular age group. As shown in Table 8, the mean 5 year illness rates for children in each age group have a variance significantly greater than is to be expected from the random variation in annual attack rates. The average variance for year-to-year fluctuation in individual rates is low, indicating a marked tendency for these children to remain at about the same sickness level over the entire 5 year period. In the group there were wide differences and sickly children remained sickly.

CONCLUSIONS

This study of sickness among school age children warrants the following conclusions:

1. For the individual child, frequency of attacks of illness during a 12 month period can serve as a means of selecting children who are most in need of health supervision. Those having two or more attacks of illness (excluding acute communicable diseases, infectious skin conditions, and tonsillectomies) were found to have the greatest chance of experiencing disabling or bed illnesses and illnesses considered by the family to require medical care.

2. The siblings of a child selected because of two or more attacks of illness had much higher attack rates of illness over a period of 3 to 5 years than did siblings of a child selected on the basis of one or no illness.

* Apr. 21 of the second year of the study, 1939-1940.

3. Families were found to vary significantly with respect to illness of the school age child. There were sickly families and healthy families, and individual children in particular families tended to have somewhat similar illness rates over a 3 year period.

4. There was a tendency for children to remain at about the same sickness level over a period of 5 years. In the group studied there were wide differences, and sickly children remained sickly.

5. The problem of the health of the school child appears to be a problem highly concentrated in certain families, and thus concerns the health of the family and not the individual child alone.

ACKNOWLEDGMENTS are made to the Johns Hopkins School of Hygiene and Public Health, especially to the Departments of Epidemiology and Biostatistics for generous assistance and coöperation which have greatly facilitated the carrying on of the study of

illness in the Eastern Health District of Baltimore; to the Baltimore City Health Department for generous assistance and coöperation, especially in the matter of relationships with the medical profession.

The study of illness in the Eastern Health District of Baltimore was conducted by the United States Public Health Service and the Milbank Memorial Fund.

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Army Increases Calories for Overseas Combat Rations

The War Department recently announced that more nutritive elements are being included in the C and 10 in 1 combat rations for American troops overseas. The standard ration for overseas troops, wherever they have regular access to the army kitchens, is the B ration. This ration, which already provides approximately 3,900 calories per man daily, has been found to be ample for the average soldier and remains unchanged. When troops go into combat, however, they are cut

off from their mess facilities and for this reason must depend on packaged rations. The 10 in 1 ration, a packaged ration that is the next thing to the food provided by the soldier's regular mess, now provides 4,150 calories per man daily, as compared to a former caloric content of 3,927. The C ration now provides 3,700 calories, compared to the 2,775 calories. The pocket or K ration, issued for emergency use by troops, is rated at 2,860 calories and remains unchanged.

Plan of the Fort Greene Industrial Health Committee*

JACOB H. LANDES, M.D.

Senior Health Officer, Fort Greene Health Center, Brooklyn, N. Y.

THE increasing concentration of workers in the industrial localities of our nation, intensified by the demands of our wartime economy, has raised the problem of industrial health education to a position of growing significance. In the Fort Greene Health District of New York City this problem proved to be of particular importance. The Fort Greene District is one of thirty health districts in New York City and is located in the northwestern part of the Borough of Brooklyn. In 1940, the district had a population of about 208,000 persons. In addition to the sizeable number of its inhabitants it is also the most industrialized district in the Borough. Available figures indicate that it includes approximately 200 plants employing a total of some 150,000 workers, among them the employees of the Brooklyn Navy Yard, which is within the district. Close to the Fort Greene boundaries are several manufacturing plants and department stores, located in the Red Hook District, which is immediately west of Fort Greene.

Within the last few years, particularly since 1939, there has been a considerable increase in the number of plants and in the number of workers employed in the area. Most of the plants are engaged in the production of war ma-

teriel and other necessities essential for our forces. These plants manufacture precision instruments, machinery, tools, and clothing. Also within the district are many plants not directly involved in the manufacture of war products. There are steam laundries, bakeries, candy factories, meat distributing plants, ice cream plants, public utilities, retail stores, and office buildings. Exclusive of the very small establishments, the number of workers engaged in each plant varies from 50 to over 30,000.

One of the major objectives of the New York City Health Department, of which the Fort Greene Health Center is subsidiary, in its disease prevention program, is that of health education. Consequently, the Fort Greene Health Center has in the past conducted health education activities among various non-industrial groups in the district, such as parent associations, merchants organizations, mothers' clubs, teachers' groups, and other organized bodies. However, in view of the concentration of so many employees in the area, it was felt that an attempt to organize a program of health education on a larger scale among the industrial employees was highly advisable.

Within the last quarter of a century great strides have been made in the fields of traumatic surgery, accident prevention, and occupational disease control. Not as much progress, however, was made in health education for

* Presented before a Joint Session of the Industrial Hygiene, Public Health Education, and Public Health Nursing Sections of the American Public Health Association at the Seventy-fifth Annual Meeting in New York, N. Y., October 5, 1944.

industrial workers. In fact, some difficulty was usually encountered in interesting management and labor in health education activities. After the outbreak of the present war the need for such an educational program became more acute. The reasons were obvious. Speed-up of production, longer hours of work, greater environmental hazards, the return of sub-standard individuals to trades and occupations—these are only some of the potential causes of the impairment of the health of the working population. Consider also the wives of servicemen and the mothers of young children, compelled by circumstance or prompted by the needs of the war effort, to engage in industrial pursuits; the children induced by high wages to enter factories and plants (as is evidenced by the tremendous increase in mercantile examinations in Health Department clinics during the past few years); the migration of workers from rural areas, exposing them to possible new diseases and hazards; and the overcrowding in homes because of the difficulty of obtaining adequate quarters. The sum of all these factors adds up to a picture of potential danger to the health of the working population, to a threat great enough to warrant large investments of time and effort for the purpose of educating workers in the principles of hygiene and the control of disease.

This situation was brought to the attention of several plant managers, a few labor leaders, and executives of welfare organizations. Fortunately for the district, a District Health Committee, one of the component committees of Neighborhood Health Development, had been functioning in the district for over a year. A skeleton organization for launching a program of health education was thus already in operation, and its existence facilitated the organization of the Industrial Health Committee under the aegis of the larger parent body, the Fort Greene District

Health Committee. Interested response arose on all sides. Besides representatives of management and labor, representatives of many other groups accepted invitations to participate in this Industrial Health Committee. These included representatives of organized medicine and of organized dentistry, the Brooklyn Tuberculosis and Health Association, the American Social Hygiene Association, the Brooklyn Visiting Nurse Association, and other local groups such as the Brooklyn Bureau of Charities, the Brooklyn Council for Social Planning, the Association for the Improvement of Vision, the Brooklyn Cancer Committee, and the New York Heart Association. The president of a leading industrial concern and the state chairman of the Congress of Industrial Organization accepted the co-chairmanship of the committee. The Director of Medical Services of the Medical Society of the County of Kings designated as secretary of the committee, was authorized by the county society to devote part of his time to direct the operation of the committee's activities. A personnel manager from another leading industrial concern was chosen as treasurer. And, included as *ex-officio* members, were the Health Officer of the Fort Greene District and the Health Officer of the adjacent Red Hook District.

The committee agreed on a tentative budget of \$20,000 to cover its operation for the first year. Plant management contributed the major part of these funds. Several labor unions also contributed, and additional funds came in from those organizations which agreed each to sponsor an issue of the tabloid, "Here's To Your Health."

Subcommittees were appointed to advise on the several activities of the program. An executive committee is presided over by the medical director of one of the plants. The medical director of a public utility plant is chairman

of the publicity committee. The other subcommittees include a medical advisory committee, a dental advisory committee, a nursing advisory committee, and a roentgenological committee. An interim committee presided over by the speaker, and having weekly meetings, includes those who are actively and intimately associated with the program.

The Fort Greene Industrial Health Committee set itself four major objectives:

1. Publication of a semi-monthly tabloid, "Here's To Your Health"
2. Organization of health committees in participating plants, through which health programs are planned for workers of the respective plants
3. Chest x-ray surveys
4. Coöperation with other organizations in the planning for medical and/or nursing care for all participating plants.

THE TABLOID

The tabloid "Here's To Your Health" is a 4 page miniature health newspaper presented in such style as to appeal to the average worker. It is written in simple language and illustrated with cartoons, photographs, and comic strips. It has a question-and-answer column, and a special column entitled, "Doc Staywell Says." The major part of each issue discusses one phase of public health. News items of plant committees and general information on the Industrial Health Committee's activities are printed in each issue. To date fifteen issues have been published. These include one general and introductory issue, and one issue each dealing primarily with tuberculosis, venereal diseases, diabetes, maternal and child care, safety, vision, appendicitis, poliomyelitis and hay fever, summer hygiene, nutrition, recreation, alcoholism, and heart disease. Another general issue covers some of the important problems discussed previously. The cost of each issue, printed in 60,000

copies, is approximately \$375. That includes printing, editing, cartoonists' fees, and distribution costs.

The production of each issue of the tabloid may be of interest. Material for the tabloid is contributed by members of the Health Department staff, by volunteer physicians and by welfare organizations which may or may not be the sponsors of the particular issue. These articles are submitted to a lay editor who edits and revises them with an eye to lay appeal. The copy is then presented to a medical committee consisting of the chairman of the publicity committee, the director of medical services of the Medical Society of the County of Kings who is the secretary of the Industrial Health Committee, and the Health Officer. This committee checks the accuracy of all medical information. The copy is then submitted to the Director of Health Education of the New York City Department of Health for final approval or emendation. Controversial subjects or matters of policy are presented to the Commissioner for an opinion and decision.

To stimulate interest in the tabloid, an essay contest on "What You Don't Know Can Hurt You" was announced in the first issue of the tabloid. Over 60 essays were received and three prizes were awarded for the best essays, the first prize consisting of a \$50 war bond.

In connection with each issue of the tabloid, posters are distributed to each plant. The posters deal with the subject matter of the tabloid, and reach each plant several days before the release of the tabloid. Several posters were contributed by sponsoring agencies, while others were printed by the committee.

As with all printed matter, it was recognized that not all workers employed in the plants would read every issue, and that many might not read the entire contents of each issue. The committee was therefore of the opinion

that mere distribution of the tabloid would not of itself be a very effective medium of health education. Stimulation of the readers' interest was definitely indicated. Furthermore, it was felt that a health education program developed by the Industrial Health Committee and submitted to the various plants of the district might not meet the specific needs and interests of employees in the diversified plants. It was therefore concluded that the best method of reaching the workers would be through their own representatives, already established in their confidence, thus providing for our efforts the broad base of group participation and interest so vital for success. This, then, was our second objective.

HEALTH COMMITTEES

Safety committees have been functioning in industrial plants throughout the country for many years, but rarely do these committees consider matters other than the prevention of accidents. The organization of actual health committees in plants, though tried in several communities, has been generally a novel idea. The aim of such a health committee would be to conduct its educational program, governed by the special needs and interests of the workers in its plant and cognizant of the facilities available in that plant for health education activity. The committee should include representatives of labor and management as well as the plant doctor or nurse, if any. The organization of such health committees in every one of the cooperating plants became the second objective. The plans met with the approval of management and of the local union leadership. Little difficulty was encountered in interesting management in the organization of such committees, and to avoid possible suspicion or distrust on the part of the workers, the secretary of the committee and the Health Officer, to-

gether or individually, met with each committee, explained the objectives, and outlined the aims.

Briefly, the functions of the plant health committees are as follows:

1. Members of the committee distribute "Here's To Your Health" to every worker in the plant and urge the workers to read the tabloid and take it home to other members of the family.

2. They obtain supplementary health education literature in which workers might be interested.

3. They organize health talks or health film showings in the plants or at labor union meetings.

4. They plan meetings with a nutritionist to discuss adequate nutrition, particularly with workers who bring their own lunches.

5. They confer with a nutritionist and plant cafeteria manager on planning menus.

6. They refer workers with health or personal problems to the health center. These problems may include the need for a chest x-ray, or Wassermann, for a physician or nurse for an at-home patient, or for consultation regarding a family adjustment problem.

The speakers available for health talks, all volunteers, include members of the Health Department staff and physicians in private practice. Films are obtained from the Health Department itself or from other organizations, official or voluntary, whose films are approved by the Health Department. The same is true of the supplementary literature. Strangely enough, when available films for showing to industrial workers were reviewed, a dearth of suitable films was discovered. A conference with the American Film Center resulted in the appointment of a film committee to work with that organization for the production of a film or films specially suitable for showing to industrial workers.

Up to the present time, 51 plants have accepted the Industrial Health Committee's program, and 28 plant health committees have been organized or are in the process of organization.

X-RAY SURVEYS

The third objective of the Fort Greene Industrial Health Committee is the organization of a program for chest x-rays. Such a program was developed with a committee from the Brooklyn Roentgenological Society and was approved by the Director of the Bureau of Tuberculosis of the New York City Health Department, and the executive secretary of the Brooklyn Tuberculosis and Health Association. X-rays will be taken at the plants proper, paper films being used, and the cost (approximately \$1 a plate) will be paid by management or labor or both. X-rays will be interpreted by a group of physicians approved by the Brooklyn Roentgenological Society. Workers found to have positive or suspicious lesions will be referred to the chest clinic of the Health Center and all positive cases will be followed up by the Health Department. The program of chest x-rays is now being worked out, and its operation will begin in the very near future.

MEDICAL AND NURSING CARE

The last objective is to coöperate with the organizations in the planning of a medical and nursing service for plants which lack such services, including about half of the participating firms. The difficulty is in the scarcity of competent professional personnel. Courses in industrial health have been given in the local medical school for the past two years and a third course is about to start. But the need for industrial physicians is still great.

Some of the other organizational procedures may be of interest. The program was initiated at a dinner given

at one of the hotels in the district. Over 325 representatives of industry, labor, welfare organizations, and the city government attended. Addresses were delivered by the Health Commissioner of the City of New York, by representatives of industry and labor, as well as by officials of the U. S. Public Health Service and by the President of the Medical Society of the County of Kings.

A special luncheon meeting was later held with industrial physicians working in district plants, and another meeting with industrial nurses. Delegates of plant committees jointly met to discuss activities of each plant, and to interchange ideas for a more effective program in all plants. A dinner meeting was also held with officers of labor unions through whom a closer relationship with individual workers was obtained.

CONCLUSIONS

The need for more health education of industrial workers is obvious, particularly during wartime. The organization of a health education program in industry is associated with certain difficulties. It requires time, patience, a proper approach to management and labor, and adequate finances. For a successful health education program in industry it is essential to have the full coöperation of management, labor unions, official and voluntary agencies, and the medical and dental professions. Such coöperation can, however, be obtained through a considerable awareness of the needs and individual concerns of the participating groups and, once a common effort is assured, the success of the program is immediately enhanced.

Current Problems in Filariasis

H. W. BROWN, M.D., F.A.P.H.A.

Professor of Parasitology, DeLamar Institute of Public Health, College of Physicians and Surgeons, Columbia University, New York, N. Y.

FILARIA infections and elephantiasis due to *Wuchereria bancrofti* have not been of especial concern to the American public despite the widespread distribution of this condition throughout the world. Our only immediate contact and experience with the disease was in the small endemic area in Charleston, S. C. The global nature of the present war, however, has exposed our armed forces to diseases not commonly present in the United States, and reports indicate that our troops are exposed to filarial infections and that numbers are becoming infected.^{1, 2}

THE CLINICAL PICTURE OF FILARIASIS

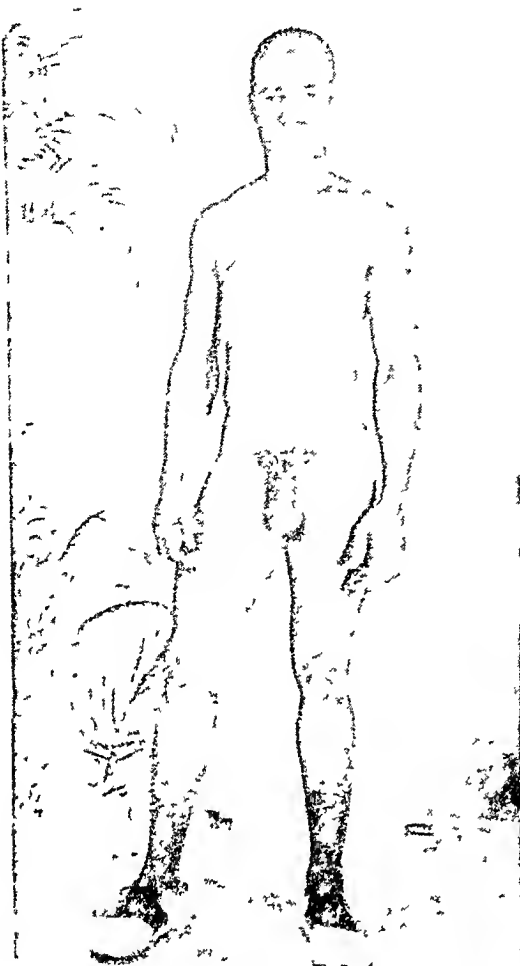
Any disease which may run its course over a period as long as 50 years is likely to vary greatly in its clinical manifestations and in its course in various human hosts. Thus the human reactions to filarial infection are extremely varied and manifold and it is impossible to delimit specifically the disease stages. Recognizing the above it is, however, possible to classify broadly the results of filaria infection into the following types: (1) asymptomatic, (2) inflammatory, (3) obstructive.

1. *Asymptomatic filariasis*—In endemic areas a large number of the natives are infected with *W. bancrofti*

and in due time exhibit microfilariae in their blood without ever experiencing symptoms referable to the infection. In time the adult worms die, the microfilariae disappear without the patient's being aware of the infection. On physical examination the patient may exhibit a general glandular enlargement especially of the inguinal lymph glands. I recently encountered a Virgin Islander with an infection of 23,240 microfilariae per ml. of blood, yet this patient, except for a slight general glandular enlargement, had no signs nor experienced any symptoms referable to his filarial infection. If all the microfilariae in his body were placed end to end they would have extended 11 miles. A blood survey of a large group of military age from St. Croix, V. I., demonstrated 20 per cent of them infected with filaria, yet practically all of them were totally unaware of their infection.

2. *Inflammatory filariasis*—The inflammatory reactions of filarial infections may be an allergic phenomenon due to a sensitivity to the products of the worms or to a superimposed bacterial infection, usually streptococci. Inflammatory reactions to filarial infections have recently occurred in army and navy personnel from 1 to 15 months after exposure to infection in the Pacific.^{1, 2} These recurrent attacks are characterized by funiculitis, epididymitis, orchitis, retrograde lymphangitis of extremities, and localized

* Presented at a Joint Session of the Health Officers, Laboratory, and Epidemiology Sections of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 5, 1944.



ASYMPTOMATIC FILARIASIS

FIGURE 1—I O. Age 17 years—23,240 microfilariae (*W. bancrofti*) per ml. of blood. Total length of microfilariae in blood stream 11 miles. He has had no symptoms referable to his infection, and physical examination revealed only a slight general glandular enlargement.

areas of swelling and redness of the arms and legs. Fever, chills, headache, vomiting and malaise may accompany these attacks which may last from several days to 2 weeks. Rome and Fogel³ have reported a group of psychosomatic manifestations among navy personnel with the inflammatory type of filariasis.

Somewhat similar acute attacks may occur at monthly or longer intervals for years in patients with or without elephantiasis. Thus one of our patients from Martinique with a slight enlargement of one leg gave a history of acute attacks every month or 6

weeks for 46 years. The acute inflammation was limited to the affected leg and inguinal nodes on that side. It is not unlikely that streptococci have a rôle in such recurrences.

3. *Obstructive filariasis or elephantiasis* — Elephantiasis is the dramatic end result of filariasis which many mistakenly believe is the inevitable termination of every filarial infection. Fortunately, to the contrary, the grossly enlarged scrotum or legs is the exception rather than the rule. The obstructive types of filariasis usually follow years after the original infection and usually are preceded by recurrent acute attacks. Adenovarix,



ELEPHANTIASIS

FIGURE 2—O. C. Age 30—elephantiasis of scrotum and legs. Microfilariae absent from the blood. Elephantiasis is usually found only in persons repeatedly reinfected and presumably is infrequently the end result of light infections such as our troops are experiencing.

hydrocele, chylurocele and elephantiasis of the legs, scrotum, arms, breasts, or vulvae are end results. The rate of growth of these enlargements may be slow and proceed over many years. Growth may be rather rapid, however, as in the case of a patient I saw recently whose apparently normal sized scrotum enlarged to weigh 14 pounds due to actual tissue growth in approximately a year. Microfilariae are frequently absent from the blood of the patients in these late stages of the disease as is illustrated by the result of thick blood smear examination of 30 of our elephantiasis patients in only 30 per cent of whom were microfilariae demonstrable. A moderate eosinophilia may be present during any stage of the filarial infection.

Elephantiasis is usually seen only in persons living in endemic areas who are exposed to repeated filarial infections year after year, such as natives who sleep without any protection against mosquitoes all their lives. Even with repeated infections only a small proportion of them develop gross elephantiasis. It appears rather unlikely, therefore, that American troops who are removed from the endemic area as soon as their infection is recognized, will develop elephantiasis in any numbers.

DIAGNOSIS OF FILARIASIS

Clinical diagnosis—The clinical diagnosis of filariasis will depend upon a history of exposure to mosquitoes in endemic areas in conjunction with the clinical findings discussed above.

Laboratory diagnosis—The blood of patients with clinical filariasis does not always contain microfilariae. From 12 to 18 months probably elapse from the time of infection until the worm matures and produces microfilariae; hence during the early months of clinical inflammatory filariasis the microfilariae will not be found in the blood. Likewise late in the disease by the time

elephantiasis is present the adult worms and microfilariae may both have died.

Except for *W. bancrofti* infections acquired in certain areas of the Pacific, the microfilariae may be tenfold as abundant from 10 p.m. to 2 a.m. as any other time; hence this is the best time to draw blood for examination. There are 3 methods of examination of the blood:

1. *Examination of fresh blood*—The simplest method of examination is to secure on a slide several drops of blood from the finger and examine it immediately under the lower power of the microscope for the actively moving microfilariae.

2. *Examination of stained blood*—Either make a thick smear, as for malaria, of blood secured from the finger, or secure 0.1 ml. of blood in a tuberculin syringe (from an arm vein) and spread over a 1 x 3 inch slide. After drying stain with Giemsa 45 minutes and destain 10 minutes in water buffered to pH 7.2. Dry slide and examine under low power of the microscope. To prepare Giemsa stain add 1 ml. concentrated stain to 50 ml. water buffered to pH 7.2. The examination of a single slide (0.1 ml. of blood) will detect infections with approximately 50,000 microfilariae circulating in the blood.



FIGURE 3—Microfilaria of *Wuchereria bancrofti* from blood. The sheath is visible on the posterior end of the larva. Length of microfilaria 260 μ .

3. *Concentration method*—To detect light infections or to follow the results of experimental therapy the most sensitive technic is the concentration method of Knott.⁴ One ml. of blood is added to 9 ml. of a 2 per cent formalin solution in a 15 ml. conical centrifuge tube. The formalin solution lyses the red blood cells greatly decreasing the debris. After centrifuging at high speed for several minutes the supernatant fluid is decanted and the sediment smeared over a 1 x 3 inch slide. This preparation can be examined directly or allowed to dry and stained with methylene blue or Giemsa before examining. Since 1 ml. of blood is examined this method should detect microfilariae when as few as 5,000 are present in an adult patient.

INTRADERMAL AND SEROLOGICAL DIAGNOSTIC TESTS

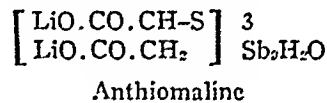
The diagnosis of early clinical filariasis before the microfilariae appear in the blood stream may be greatly aided by intradermal and complement-fixation tests. Recently Bozicevich and Hutter,⁵ using an antigen prepared from the dog heartworm, *Dirofilaria immitis*, have shown that intradermal tests with this antigen in 1-8,000 dilution is a highly useful diagnostic procedure. Similarly, Culbertson, Rose, and Demarest,⁶ using antigen prepared from the cotton rat filaria, *Litomosoides carinii*, found a high correlation between positive responses and filarial infections. The complement-fixation test of Fairley⁷ may also be a useful tool in the diagnosis of early filariasis.

TREATMENT OF FILARIASIS

It is common knowledge in endemic filaria areas that rest and moving to a cool climate aids greatly in reducing the severity and numbers of the acute attacks. On the other hand, strenuous exercise under tropical conditions lead to exacerbations of the lymphangitis.

Although mere changes in climate will not kill the parasite and thus perhaps cure the patient, there is no doubt that a cooler climate improves the general well-being of infected persons which in turn may be reflected in the total course of the disease.

Numerous drugs have been tried in the treatment of early filarial infections. Occasionally the treatment has resulted in a temporary decrease in the number of microfilariae circulating in the blood stream, but the adult worms were not killed as they continued to produce microfilariae. Several of the drugs that have a temporary action on filarial infections contain antimony.* Recently I treated a group of filaria infected persons⁸ with the antimony compound Anthiomaline (lithium antimony thiomalate) with good results.



Anthiomaline is supplied as a 6 per cent solution, 1 ml. containing 60 mg. of lithium antimony thiomalate or 10 mg. of antimony. The treatment consists of daily intramuscular injections of 3 ml. of the drug for 2 to 4 weeks. The results of treatment were followed by microfilaria counts on the patients' blood for a year following treatment. It will be seen from Table 1 that, with the exception of patient No. 9, all of the patients experienced a marked reduction in microfilaria counts.

Graph I illustrates the rapid initial drop in microfilarial count with the later slower decreases. The question arises, of course, as to whether the

* After this article was in press, Drs. Culbertson and Rose reported excellent results in filarial infections with Neostilboan, a pentavalent antimony compound which has the advantage of being less toxic than trivalent antimony compounds such as anthiomaline. "Chemotherapy of Human Filariasis with Pentavalent Antimony Compounds," Culbertson, J. T., and Rose, H. M. Amer. Soc. Trop. Med. Meeting, Nov. 16, 1944.

TABLE 1

Effect of Intramuscular Injections of Anthiomaline on Wuchereria bancrofti Infections

| Case No. | Age | Wt. lbs. | Treatment Period Days | Total ml. Drug | Microfilaria Count—0.1 ml. Blood | | | |
|----------|-----|----------|-----------------------|----------------|----------------------------------|-----------------|--------------------------|-------------------------|
| | | | | | Before Treatment | After Treatment | 4-5 Mos. After Treatment | 12 Mos. After Treatment |
| 1 | 23 | 118 | 13 | 19.7 | 86 | 109 | 14 | 44 |
| 4 | 70 | 126 | 17 | 43.5 | 208 | 21 | 6 | .. |
| 5 | 11 | 68 | 28 | 46.5 | 1,666 | 3 | 3 | 1 |
| 9 | 19 | 132 | 20 | 55.5 | 12 | 42 | 12 | 23 |
| 17 | 17 | 140 | 19 | 49 | 2,324 | 14 | 72 | .. |
| 18 | 16 | 86 | 18 | 35.5 | 1,100 | 25 | 159 | 86 |
| 21 | 11 | 76 | 18 | 32 | 756 | 18 | 0 | 0 |
| 22 | 21 | 96 | 7 | 15 | 129 | 8 | 1 | 29 |
| 23 | 28 | 155 | 26 | 76.5 | 159 | 1 | 0 | 0 |
| 24 | 16 | 110 | 16 | 29.5 | 236 | 68 | 33 * | .. |
| 25 | 31 | 125 | 17 | 42.5 | 234 | 58 | 34 | 23 |

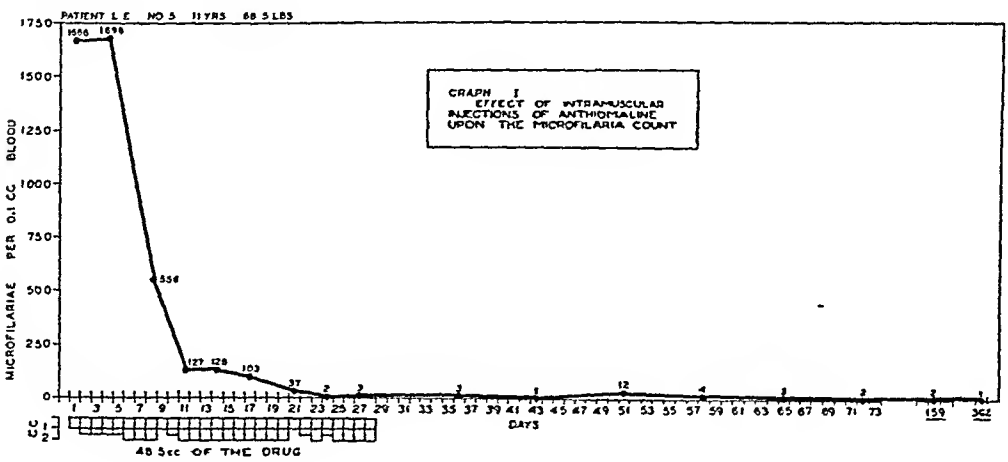
* 7 months after treatment

drug kills only the microfilariae or the adults as well. It is believed that both are killed for if the adults were not killed they should produce microfilariae and in time their numbers in the blood should approximate those before treatment. It is possible that the drug kills the microfilariae and permanently sterilizes the adult worms without killing them. Toxic manifestations of anthiomaline consisting of vomiting, joint pain, slight fever and rash were experienced by a number of the patients but were not of sufficient severity to preclude continued use of the drug.

Sulfonamides have been used in the treatment of the acute recurring lymphangitis and cellulitis of filariasis with some success.⁹ The activity of

these drugs is probably upon the streptococci and other bacteria that participate in the etiology of the attack. With sulfonamide therapy the patient's fever and malaise subside much more rapidly than the localized inflammation of the leg or scrotum. Pons¹⁰ and Advies¹¹ have both reported some success in treating acute filarial lymphangitis with streptococcal vaccines.

Surgical alleviation of elephantiasis may be successful but constitutes an admission of failure of early treatment. Removal of the greatly enlarged scrotum frequently gives very good results. Surgery on elephantoid legs consisting of removal of tissue and an attempt to anastomose the superficial and deep lymphatics, although sometimes effective, leaves much to be desired.



INTRODUCTION OF FILARIASIS INTO THE
UNITED STATES

The introduction of filariasis by returning troops and the establishment of endemic foci in this country are matters for careful consideration.* The transmission of filariasis by mosquitoes is somewhat hazardous to them. Heavy infections may result fatally to the mosquitoes. Further, there is no multiplication of the parasite in the mosquito as there is in malaria; hence the mosquito must secure from human blood a microfilaria for every worm it transmits to a new victim. Still further, it is believed that the infectious larva is not injected into the blood stream of man by the mosquito but is merely deposited upon man's skin and must make its own way into the lymph stream. These factors militate against successful transmission from man to man. In general it appears that an abundance of vectors and human carriers are needed for successful transmission of the parasite. In many parts of the United States, although mosquitoes are considered to be a pest and very abundant, their numbers do not begin to approach those found in heavy filarial infected areas. It is possible, however, that through a fortuitous combination of all circumstances, a mosquito might bite an infected individual in this country and live to reinfect another person. Dunn¹² reports such an infection in Philadelphia, Slaughter¹³ two from Richmond, Va., and Mastin¹⁴ one from Mobile, Ala. Presumably these infections were acquired in these areas. On the other hand, these areas did not become endemic centers.

A number of years ago a large group of Negroes from filarial infected areas were imported into Charleston, S. C. Due to the climate there, mosquitoes can breed much of the year, and in the

early days before mosquito control they were unusually abundant. Thus the unusual combination of a large number of filarial infected individuals and a large number of mosquitoes much of the year resulted in the transmission of filariasis to a considerable number of persons in Charleston. A survey made there by Johnson¹⁵ in 1915 of 400 individuals composed largely of routine hospital admissions revealed an infection rate of 19.25 per cent. Within the last few years control measures to eliminate mosquitoes in the Charleston area have been pushed vigorously and the screening of homes has become much more prevalent. For these reasons and possibly others, the transmission of filariae in the area has practically ceased and no new infections have occurred in Charleston in the past few years. In other words, the infection is dying out. If under the more or less ideal conditions of climate and a large initial infection, this infection died out in Charleston, it does not seem likely that it will spread in the northern areas of the United States where mosquitoes are found in numbers only during the hot summer months.

Filarial infected persons have been reported from Columbia, Beaufort, and Georgetown, S. C., Jacksonville, Fla., Mobile, Ala. (Francis¹⁶), Philadelphia, Pa. (Flint¹⁷), and Boston (Lothrop and Pratt¹⁸). These persons all give a history of having lived in Charleston, S. C., or having come from a filarial area in the tropics. No endemic foci or secondary cases arising from these infections have been reported although the climate of several of these areas is very favorable for mosquitoes and they are found in considerable abundance. In recent years thousands of Puerto Ricans and inhabitants of other infected Caribbean countries have entered the United States and made their homes here. We have found some of these individuals harbor large numbers of

*To date it has been possible to demonstrate microfilariae in the blood of very few of these men.

microfilariae in their blood but to our knowledge they have not been the cause of additional cases of filariasis in this country.

It is believed that the evidence at hand can be summarized as follows: It is possible that returning filarial infected troops may transmit, through mosquitoes, their infection to other individuals in this country. This occurrence, however, is rather unlikely and, although we should be aware of the possibility and do what we can to prevent it, it does not appear likely to be of any great importance.

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NOTE: I wish to thank Dr. Norman D. Thetford, Chief Medical Officer, St. Croix, Virgin Islands, for enabling me to study his patients and his aid in the therapeutic studies.

This study was made possible through the financial support of the John and Mary Markle Foundation.

Active Immunization with Purified Somatic Antigens of *Eberthella typhosa*, *Salmonella paratyphi*, and *Salmonella schottmuelleri**

LT. HERBERT R. MORGAN, MC, AUS

*Hooper Foundation for Medical Research and the Department of Medicine,
University of California Medical School, San Francisco, Calif.*

DURING the past few years, a number of investigators¹⁻⁴ have studied purified somatic antigens prepared from members of the enteric group of organisms which have similar properties though isolated by a variety of techniques. Using an alcoholic precipitation technique,⁴ a purified antigen was obtained from cultures of *Eberthella typhosa* which had been grown in a synthetic medium, thereby avoiding contaminating materials which might have been derived from the usual complex culture substrates. This antigen has been studied in detail with regard to its toxicity and antigenicity in animals^{4,5} and man.^{6,7} The antigen produces a good immunogenic response in man in well tolerated, subcutaneous doses⁷ although it is highly toxic for human beings when injected intravenously.⁶ These previous investigations indicate the desirability of a comparative study of the purified somatic antigens of other organisms of this group and of a triple typhoid (TAB) bacterial vaccine for human immunization. This study records the results of such an investigation.

DESCRIPTION OF ANTIGENS

The purified antigens used in the present study were isolated from cultures of *E. typhosa*, *Salmonella paratyphi* and *Salmonella schottmuelleri* by the alcoholic precipitation technique previously described.⁴ These antigens, stored as suspensions in distilled water, were diluted and combined for injection in 0.85 per cent saline containing 0.2 per cent formalin.

The purified typhoid antigen M4 was the same preparation as had been used in the experiments previously reported⁴⁻⁷ and had been stored for over 2½ years in the refrigerator with several periods of exposure to ordinary room temperature for as long as 2 weeks before being used in this investigation. The immunizing activity of this antigen for mice was compared with that reported for two similar antigens previously isolated and described by W. T. J. Morgan² and by Wakeman³ (see Table 1).

Mice were immunized with one or two intraperitoneal or intravenous injections of antigen as noted in Table 1 and were challenged at periods varying from 6 to 10 days later by the intraperitoneal injection of 50,000 to 100,000 organisms of a virulent strain of *E.*

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

TABLE 1

Immunity Produced in Mice by Several Different Purified Antigens of E. typhosa

| Antigen | Immunizing Injections | | | | Challenge Injection
(given i p.) | | No. Animals | Weight gm. | Survival Per cent |
|--------------------------------------|--------------------------|--|-----|------|--|--|-------------|------------|-------------------|
| | Amount per Injection mg. | Route | No. | Days | Inter-
val
Be-
tween
Injec-
tions
Days | No. E
After typhosa
Immu-
nizing
Injec-
tion
5%
Mucin | | | |
| M4—Expt. 1 | 0.001 | i.p. | 1 | .. | 6 | 10 ⁶ | 4 | 16-18 | 100 |
| | 0.0001 | i.p. | 1 | .. | 6 | 10 ⁶ | 4 | 16-18 | 75 |
| | 0.00001 | i.p. | 1 | .. | 6 | 10 ⁶ | 4 | 16-18 | 0 |
| <i>L</i> _D 50 * | 0.00005 | (No. of antigen dilutions tested—6; total no. animals used—24) | | | | | | | |
| Expt. 2 | 0.0005 | i.p. | 1 | .. | 6 | 10 ⁶ | 4 | 16-18 | 75 |
| | 0.00005 | i.p. | 1 | .. | 6 | 10 ⁵ | 4 | 16-18 | 50 |
| <i>L</i> _D 50 * | 0.00008 | (No. of antigen dilutions tested—4; total no. animals used—16) | | | | | | | |
| Expt. 3 | 0.000005 | i.p. | 1 | .. | 6 | 10 ⁵ | 4 | 18-20 | 100 |
| | 0.0000005 | i.p. | 1 | .. | 6 | 10 ⁵ | 4 | 18-20 | 0 |
| <i>L</i> _D 50 * | 0.000003 | (No. of antigen dilutions tested—6; total no. animals used—24) | | | | | | | |
| 7C of Wakeman ³ | 0.05 | i.p. | 1 | .. | 7 | 10 ⁵ | 6 | 16-18 | 66 |
| | 0.005 | i.p. | 1 | .. | 7 | 10 ⁵ | 6 | 16-18 | 66 |
| | 0.0005 | i.p. | 1 | .. | 7 | 10 ⁵ | 6 | 16-18 | 50 |
| | 0.00005 | i.p. | 1 | .. | 7 | 10 ⁵ | 6 | 16-18 | 33 |
| <i>L</i> _D 50 * | 0.0005 | (No. of antigen dilutions tested—6; total no. animals used—36) | | | | | | | |
| O-VI of W. T. J. Morgan ² | 0.01 | i.v. | 2 | 7 | 10 | 5 × 10 ⁴ | 5 | 18-22 | 100 |
| | 0.001 | i.v. | 2 | 7 | 10 | 5 × 10 ⁴ | 10 | 18-22 | 90 |
| Acetone dried | 0.5 | i.p. | 1 | .. | 7 | 10 ⁵ | 6 | 16-18 | 100 |
| Bacilli of | 0.05 | i.p. | 1 | .. | 7 | 10 ⁵ | 6 | 16-18 | 66 |
| Wakeman ³ | 0.005 | i.p. | 1 | .. | 7 | 10 ⁵ | 6 | 16-18 | 33 |
| | 0.0005 | i.p. | 1 | .. | 7 | 10 ⁵ | 6 | 16-18 | 0 |
| | 0.00005 | i.p. | 1 | .. | 7 | 10 ⁵ | 6 | 16-18 | 33 |
| | 0.000005 | i.p. | 1 | .. | 7 | 10 ⁵ | 6 | 16-18 | 0 |
| <i>L</i> _D 50 * | 0.01 | (No. of antigen dilutions tested—6; total no. animals used—36) | | | | | | | |

* Fifty per cent end points calculated by the method of Reed and Muench.⁹ The data for the *L*_D50 calculations for the antigens of Wakeman³ and the data of Morgan² were obtained from their respective publications since no direct comparative experiments were possible.

typhosa suspended in 5 per cent mucin as is noted by the various authors.^{2, 3}

It is apparent from the data collected in Table 1 from the previous publications^{2, 3} that antigen M4 is more effective than the antigens of W. T. J. Morgan² or Wakeman³ on the basis of the data cited, and is considerably more active than an equal weight of acetone dried typhoid bacilli which Wakeman had shown in earlier experiments³ to be superior to the usual bacterial vaccine in the active immunization of mice.

Although the minimum lethal dose of antigen M4 was 0.5–1.0 mg. for mice by the intraperitoneal route, a dose of 1/100,000 of this amount was sufficient to protect mice against a challenge in-

jection of virulent typhoid bacilli. There is therefore an indication that the immunogenic activity of this purified somatic antigen is much greater than its toxic effect.

The triple typhoid (TAB) vaccine (Type 1940)* for immunization of the control groups was obtained from the Army Medical School.

ACTIVE IMMUNIZATION IN MAN

Groups of dental students 19 to 28 years of age, with no history of typhoid fever who had not been previously immunized against this disease were in-

* This bacterial vaccine contains: 1,000 million *E. typhosa* organisms (strain 42-A-48), 250 million *S. paratyphi* bacilli (strain 41-N-22), and 250 million *S. schottmuelleri* organisms (strain 41-H-6) per ml.

TABLE 2
Reactions Following Immunization

| <i>Type of Reaction</i> | <i>Grade of Reaction</i> | | | |
|-------------------------|--------------------------|----------------|-------------------------------------|---------------------|
| | <i>I</i> | <i>II</i> | <i>III</i> | <i>IV</i> |
| Temperature | <99.5° F. | 99.5–99.8° F. | 99.8–100.2° F. | >100.2° F. |
| Tenderness (local) | Only to 5 cm. | Only to 10 cm. | Some tenderness of entire upper arm | Unable to raise arm |
| Malaise | None | Slight | Moderate | Severe |
| Headache | None | Slight | Moderate | Severe |
| Nausea | None | None | Slight | Moderate |

| <i>Reaction Following Injection</i> | <i>Percentage of Individuals Showing Each Reaction</i> | | | |
|-------------------------------------|--|--------------------|---------------------|--------------------|
| | <i>I Per cent</i> | <i>II Per cent</i> | <i>III Per cent</i> | <i>IV Per cent</i> |
| Injection No. 1 | | | | |
| Group A (16 persons) | 65 | 29 | 6 | 0 |
| Group B (21 persons) | 58 | 33 | 9 | 0 |
| Group C (26 persons) | 38 | 46 | 16 | 0 |
| Injection No. 2 | | | | |
| Group A | 48 | 35 | 17 | 0 |
| Group B | 43 | 48 | 9 | 0 |
| Group C | 15 | 58 | 12 | 15 |
| Injection No. 3 | | | | |
| Group A | 65 | 29 | 6 | 0 |
| Group B | 86 | 14 | 0 | 0 |
| Group C | 80 | 15 | 5 | 0 |

Note: See Table 3 for description of groups A, B, and C.

jected with the purified antigens or TAB bacterial vaccine at weekly intervals (see Table 3).

Each person recorded his local and systemic reactions including temperature, pulse, headache, malaise and nausea on a chart at stated intervals for a period of 48 hours following each injection. Table 2 summarizes these reactions.

The reactions produced by the purified antigens were less severe than those following the injection of the TAB bacterial vaccine. This difference is most apparent following the second of three injections.

SEROLOGICAL TESTS

Sera from all individuals obtained before immunization and again 2 weeks after the final injection were titrated for mouse protective antibody. Control sera from individuals who had received TAB bacterial vaccine in a group

studied by the Army Medical School were included in these tests.

The mouse protective antibody titers were determined using the technique previously described⁴ which utilizes mucin prepared according to Siler, et al.⁸ The sera were tested against the organisms represented in the immunizing preparations. Each of 6 mice was injected by the intraperitoneal route with 0.5 ml. of serial dilutions of serum from each individual. One hour later, each animal was given an intraperitoneal injection of 0.5 ml. of a 5 per cent suspension of mucin containing the infecting organisms. The number of organisms in this challenge dose was 50,000 for *E. typhosa* (strain 42-A-63), 2,000,000 for *S. paratyphi* (strain "Edwards" 3509-43), and 25,000 for *S. schottmuelleri* (strain 2292 AMS). Deaths were recorded at the end of 72 hours. Fifty per cent end point protective test titers calcu-

lated by the method of Reed and Muench⁹ are recorded in Table 3.

No significant titers were found in the sera obtained before immunization. The majority of individuals showed titers of less than 1:5 for *E. typhosa* and less than 1:10 for *S. paratyphi* and *S. schottmuelleri*. Some of the immune sera initially tested in excessively hot weather showed substantially higher titers for *E. typhosa* when retested during a cooler period. It is possible that the susceptibility of the mice to the challenge dose was enhanced by the increased temperature. The effect of the increased temperature is further indicated by the high titers of protective antibody for *S. paratyphi* and *S. schottmuelleri* obtained from the same sera in tests run in cooler weather.

The purified antigens are apparently as efficacious in producing mouse protective antibody as is the TAB bacterial vaccine (Type 1940) which has been exhaustively tested and modified to increase its immunogenic potency.¹⁰

DISCUSSION

The experiments clearly indicate that the immunizing potency of these purified antigens for man is so great in comparison to their toxicity⁶ that they can be used with safety for active immunization. Dosages which induce less severe reactions than those following the use of bacterial vaccines will produce comparable levels of mouse protective antibody. This difference in immunogenic and fatal doses is striking in mice where the immunizing dose against 100,000 typhoid organisms of the typhoid somatic antigen is 1/100,000 of the fatal dose, demonstrating that the purification process has increased the immunizing activity without concomitant increase in toxicity. This represents a distinct advantage because untoward reactions to such an antigen are significantly reduced in incidence and severity.

It is probable that the dose of purified antigen can be decreased further without appreciable fall in mouse protective antibody because no significant differences in antibody levels were found in two comparable series of individuals who received a total dosage of 0.2 mg. and 0.1 mg. of typhoid antigen respectively.⁷ As yet no attempts have been made to determine the minimal effective dose for man.

The lower protective titers obtained with several sera tested initially during hot weather when the animal rooms were very warm are in accord with observations¹¹ that increased atmospheric temperatures heighten the susceptibility of mice to infection with bacteria. This factor operated equally in the control and experimental groups as the tests were run simultaneously.

On the basis of mouse protective titers, the data indicate that these purified somatic antigens are as active as the classical TAB bacterial vaccine in immunization. In addition, the purified antigens have the advantage of eliminating a large amount of bacterial substance which is antigenically inert as far as the production of active immunity is concerned.³ Also, the extraction of the somatic antigen from the cell probably results in an increase in immunizing capacity since Wakeman³ found that his purified antigen 7C contained 40 per cent more immunizing doses for mice than did the amount of acetone-dried bacterial cells from which it was prepared.

The purified somatic antigens studied have the following advantages: (a) ease of preparation and standardization; (b) concentration in a small volume; (c) stability to heat⁴ and in aqueous solution; (d) increased immunogenic activity with decreased toxicity; (e) elimination of immunologically inert bacterial substances.

The development of a technique for a rapid, large-scale production of these

TABLE 3

Dosage of Antigen and Mouse Protective Antibody Titers of Sera of Individuals Before Immunization and Two Weeks After the Last Injection

| Group A | | |
|--|-------------------------------|---------------------------------|
| Purified Antigens
Injection Number | <i>E. typhosa</i>
mg. | <i>S. Schottmuelleri</i>
mg. |
| 1 | 0.02 | 0.005 |
| 2 | 0.06 | 0.015 |
| 3 | 0.10 | 0.025 |
| | <hr/> 0.18 | <hr/> 0.045 |
| Mouse Protective Antibody Titers Two
Weeks After Last Injection | | |
| Person Number | <i>E. typhosa</i> * | <i>S. schottmuelleri</i> † |
| 1 | 1:20 | 1:110 |
| 2 | 1:25 | 1:55 |
| 3 | 1:55 | 1:120 |
| 4 | 1:175 | 1:110 |
| 5 | 1:95 | 1:250 |
| 6 | 1:80 | 1:85 |
| 7 | 1:110 | 1:110 |
| 8 | 1:50 | 1:100 |
| 9 | 1:70 | 1:210 |
| 10 | 1:70 | 1:250 |
| 11 | 1:25 | 1:110 |
| 12 | >1:320 | 1:225 |
| 13 | >1:320 | 1:110 |
| 14 | 1:50 | 1:160 |
| 15 | 1:55 | 1:125 |
| 16 | 1:160 | 1:35 |
| | Titers Before
Immunization | Titers Before
Immunization |
| | No. 7—1:5 | No. 4—1:10 |
| | No. 12—1:10 | No. 7—1:20 |
| | | No. 9—1:10 |

| Group B | | | |
|--|--------------------------|----------------------------|---------------------------------|
| Purified Antigens
Injection Number | <i>E. typhosa</i>
mg. | <i>S. paratyphi</i>
mg. | <i>S. schottmuelleri</i>
mg. |
| 1 | 0.02 | 0.008 | 0.008 |
| 2 | 0.05 | 0.02 | 0.02 |
| 3 | 0.05 | 0.02 | 0.02 |
| | 0.12 | 0.048 | 0.048 |
| Mouse Protective Antibody Titers Two Weeks
After Last Injection | | | |
| Person Number | <i>E. typhosa</i> * | <i>S. paratyphi</i> † | <i>S. schottmuelleri</i> ‡ |
| 1 | <1:10 (1:25) ** | >1:160 | 1:60 |
| 2 | 1:15 (1:20) | 1:35 | 1:60 |
| 3 | <1:10 (1:20) | 1:115 | 1:100 |
| 4 | 1:40 (1:65) | 1:130 | 1:115 |
| 5 | 1:80 (>1:160) | 1:120 | 1:130 |
| 6 | <1:10 | 1:40 | >1:320 |
| 7 | 1:50 | 1:150 | 1:320 |
| 8 | 1:10 (1:40) | 1:80 | 1:135 |
| 9 | 1:10 (1:105) | 1:115 | 1:140 |
| 10 | 1:25 | 1:75 | 1:225 |
| 11 | <1:10 | 1:130 | >1:320 |
| 12 | 1:25 (1:70) | >1:160 | >1:320 |
| 13 | 1:40 | >1:160 | <1:100 |
| 14 | 1:50 (1:160) | >1:160 | 1:445 |
| 15 | 1:110(1:130) | 1:45 | 1:115 |
| 16 | <1:10 | 1:25 | 1:190 |
| 17 | 1:30 | 1:25 | 1:115 |
| 18 | 1:50 (1:145) | 1:115 | 1:165 |
| 19 | 1:10 | 1:125 | 1:40 |
| 20 | <1:10 (1:35) | 1:25 | >1:320 |
| 21 | <1:10 | 1:105 | 1:530 |

TABLE 3 (Cont'd)

Group C

Bacterial Vaccine
Injection NumberBacterial Vaccine
ml.

| | |
|---|-----|
| 1 | 0.5 |
| 2 | 1.0 |
| 3 | 1.0 |
| | — |
| | 2.5 |

Mouse Protective Antibody Titers Two Weeks
After Last Injection

| Person Number | <i>E. typhosa</i> * | <i>S. paratyphi</i> † | <i>S. schottmuelleri</i> ‡ |
|---------------|---------------------|-----------------------|----------------------------|
| 1 | <1:10 | 1:30 | 1:105 |
| 2 | 1:10 | 1:30 | 1:140 |
| 3 | 1:10 (1:35) | 1:25 | 1:295 |
| 4 | 1:20 (1:70) | 1:80 | >1:320 |
| 5 | <1:10 | .... | .... |
| 6 | 1:50 (>1:160) | 1:115 | >1:320 |
| 7 | <1:10 | .... | .... |
| 8 | 1:10 (1:50) | >1:160 | 1:95 |
| 9 | <1:10 (1:30) | >1:160 | 1:65 |
| 10 | 1:20 (1:115) | 1:95 | 1:240 |
| 11 | 1:80 | .... | 1:160 |
| 12 | 1:100 | .... | 1:110 |
| 13 | 1:15 | .... | 1:30 |
| 14 | 1:115 | .... | 1:160 |
| 15 | 1:40 | .... | 1:50 |
| 16 | 1:15 | .... | 1:110 |
| 17 | 1:45 | .... | 1:60 |
| 18 | 1:50 | .... | 1:110 |
| 19 | 1:100 | .... | 1:110 |
| 20 | 1:40 | .... | 1:225 |
| 21 | 1:55 | .... | 1:110 |
| 22 | 1:170 | .... | 1:160 |
| 23 | 1:70 | .... | 1:110 |
| 24 | 1:115 | .... | 1:55 |
| 25 | 1:70 | .... | 1:55 |
| 26 | 1:45 | .... | 1:225 |
| AMS 66 | .... | 1:60 | .... |
| AMS 68 | .... | 1:50 | .... |
| AMS 90 | .... | 1:40 | .... |
| AMS 91 | 1:55 | 1:135 | 1:90 |
| AMS 93 | .... | .... | 1:80 |
| AMS 98 | .... | .... | 1:55 |
| AMS 105 | 1:105 | .... | 1:65 |
| AMS 108 | 1:45 | .... | 1:135 |
| AMS 111 | 1:115 | .... | 1:115 |
| AMS 120 | 1:115 | .... | .... |

Titers Before
ImmunizationNo. 13—1:5
No. 19—1:5Titers Before
ImmunizationNo. 12—1:10
No. 15—1:10
No. 16—1:20
No. 17—1:10
No. 20—1:10
No. 22—1:20
No. 25—1:10
No. 26—1:10

Legend

Mouse protective titers before immunization with the exceptions noted:

* *E. typhosa* were <1:5† *S. paratyphi* were <1:10‡ *S. schottmuelleri* were <1:10

** Figures in parenthesis are titers obtained from repeat determinations during cooler weather.

.... Determination not made.

AMS Sera obtained from individuals in series studied at Army Medical School.

purified antigens would permit their substitution for bacterial vaccines for future practical use. This problem of production warrants further investigation in view of the application of these materials in the immunization of large numbers of persons in times of emergency where their increased stability and immunological activity would be of special advantage.

SUMMARY

1. Purified antigens prepared from *E. typhosa*, *S. paratyphi* and *S. schottmuelleri* cultivated in synthetic media, produced less local and constitutional reaction than a TAB bacterial vaccine when injected subcutaneously in man.

2. Purified somatic antigens in total dosage of 0.12 mg. for *E. typhosa*, 0.048 mg. for *S. paratyphi*, and 0.048 mg. for *S. schottmuelleri*, produced higher titers of mouse protective antibody than did 2.5 ml. of a standard TAB bacterial vaccine.

3. These purified antigens possess the advantages of potency, stability, and compactness.

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ACKNOWLEDGMENT—The author wishes to express his gratitude for the coöperation of the Typhoid Research Unit of the Army Medical School and to Dr. F. F. Russell of the Harvard Medical School for encouragement and advice.

1945 Lasker Award in Mental Hygiene

The National Committee for Mental Hygiene, New York City, has announced that the Lasker Award for 1945 will be given for outstanding contributions to the rehabilitation of the mentally handicapped. Nominations with supporting data are being received by the committee to be presented to an anonymous jury which will award the

prize of \$1,000, established in 1944, in November.

The first award from the Mary and Albert Lasker Foundation went to Colonel William C. Menninger, M.C., Chief Consultant in Neuropsychiatry of the U. S. Army for his contribution to the mental health of men and women of our armed forces.

Is Dermatophytosis a Significant Occupational Health Problem?*

SAMUEL M. PECK, MEDICAL DIRECTOR (R), AND LOUIS
SCHWARTZ, MEDICAL DIRECTOR, F.A.P.H.A.

U. S. Public Health Service, Bethesda, Md.

VERY little if any published data have appeared which can be used to evaluate the importance of dermatophytosis as a factor in sickness absenteeism among industrial workers. In the lists of causes of absenteeism published by the U. S. Public Health Service, dermatophytosis is not separately listed but is included among the infectious and parasitic diseases, exclusive of influenza, grippe, respiratory tuberculosis, and venereal diseases. Yet, it is a common impression among dermatologists and industrial physicians that not only does dermatophytosis contribute considerably to lost time in industry, but that the presence of a fungous infection, especially of the feet, predisposes to other allergic contact dermatoses. This last viewpoint has been carried so far by some industrial physicians that they have suggested that workers affected with fungi should not be employed where there are exposures to irritant chemicals.

In a recent report Gafafer¹ listed the frequency and duration of disabilities causing absence from work among the employees of a public utility for a 5 year period. He found that there were only 0.014 calendar days of disability per male reported from "mycosis of feet," as against 8.836 calendar days

of disability per male from all disabilities.

This paper will take up the following points: (1) Is dermatophytosis an important cause of lost time? (2) Is dermatophytosis an industrial disease? (3) Does a fungous infection predispose to industrial dermatoses? (4) Differential diagnosis of "phytids" from occupational dermatoses.

Is dermatophytosis an important cause of lost time?

We studied² the incidence of dermatophytosis of the feet in industrial workers from plants in many sections of the country. In most instances cultures were used to check our clinical findings. There were 2,123 cases examined; 1,393 males, and 730 females. Of these 27.89 per cent were clinically positive; 33.63 per cent were clinically doubtful; and 38.57 per cent were negative. The males were slightly more affected than the females, but not significantly so. The cultural studies showed that a number of the cases classified as doubtful were actual cases of dermatophytosis.

It can be seen that the incidence of dermatophytosis is high in the plant population examined, but not so high as we were led to believe. The percentages just given represent the average findings throughout the year. Examination of the plant population at various seasons of the year showed that workers who were clinically negative in

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

the winter might show positive clinical evidence of fungi in the summer. The percentage of clinically negative workers in some plants was 13-19 in the summer, rising to 54 per cent in the winter.

Trichophyton gypseum was the pathogenic fungus commonly recovered.

There were only 10 cases of dermatophytosis among all those that were examined where the condition was severe enough to necessitate such treatment as caused lost time. Only a few actually stayed away from work; the others lost time only in visiting the plant physician while they were at work.

Is dermatophytosis an industrial disease?

If dermatophytosis were acquired from or aggravated by the industrial environment, it could rightfully be classed as an industrial disease. In many plants a shower must be taken by the worker at the completion of his work. For this reason shower room flooring as a possible source of fungous infection has been the focus of attention in programs of prophylaxis of dermatophytosis. In an attempt to safeguard the workers, antiseptic footbaths have been used, and even a special type of copper impregnated flooring has been installed in the shower rooms.

Fungicidal solutions are most frequently used for the footbaths. In most plants several hundred or more workers use the footbath in about a half hour. Under these conditions, it is impossible for the workers to expose their feet long enough for the solution to be effective. Even if the footbaths are properly constructed and used, some of the solutions used rapidly lose their effectiveness.

Our experiments² indicate that copper impregnated concrete does not have any appreciable fungicidal properties. It therefore serves no useful purpose to install shower room flooring made of

this material, since fungi deposited on its surface are not killed.

If shower room flooring is an important source of fungous infections of the feet, the incidence of this disease should be higher among those workers taking compulsory showers as against those in the same plant who do not. We investigated such groups of workers and there was not enough difference in the two groups to support the view that shower room flooring plays an important rôle in the spread of fungous infections of the feet. In addition, cultures from the surface of shower room flooring made soon after showers were taken by several hundred workers showed no growth of pathogenic fungi.

However, our experimental studies of the possibility of infecting shower room flooring by contact with fungous infected feet showed that it was possible under certain special conditions to deposit fungi from infected feet, but that the chances of doing so under actual conditions were small.

A much more likely possibility than the acquisition of fungous infections from the shower room flooring is the aggravation of an already existing fungous infection by the industrial environment. Ill fitting heavy shoes (safety shoes) especially in those cases where the worker is on his feet a great deal; increased sweating of the feet due to such shoes; the wearing of heavy wool socks; exposure to insoluble oil which saturates the shoe and the sock and interferes with evaporation of sweat, all promote maceration of the skin between the toes and on the soles, and thus may aggravate a preëxisting fungous infection.

A common error, however, is to diagnose cases of hyperhidrosis with maceration of the skin as a fungous infection. *Does a fungous infection predispose to industrial dermatoses?*

It has been stated by a number of authors³ that the presence of a fungous

infection predisposes the affected individual to the acquisition of allergic contact dermatitis. Others⁴ disagree with this viewpoint.

The first group base their statements on the fact that large numbers of our population are infected with fungi, i.e., dermatophytosis of the feet, and state that as a result most of them develop a hypersensitivity to fungi and/or their products. They assert that this specific hypersensitivity of mycotic origin in some way lowers the threshold for the acquisition of other specific hypersensitivities due to contact with sensitizing chemicals. Such a supposition is contrary to our experience among the general population and in industry. In no instance have we observed that a specifically acquired sensitivity lowered the threshold for other sensitizations.

A study of the incidence of fungous allergy in 776 industrial workers was carried out and its relation to occupational dermatoses was investigated; 42.53 per cent of the workers showed a positive trichophytin test, indicating sensitivity to fungi and/or their products.

While a positive trichophytin test is only an indication that the patient has or has once had a fungous infection, our tests indicate that a greater number of positive reactions occurred in workers with clinical evidence of fungous infection. Among the 776 cases, there were so few cases of allergic dermatitis that no conclusions could be drawn as to the relationship of trichophytin sensitivity to allergic dermatitis.

However, when the incidence of positive trichophytin tests was studied among a group of cases with contact allergic dermatitis (TNT and tetryl) it was found to be no greater than that among the general industrial population, i.e., 45.59 per cent positive. If trichophytin sensitization as such played a rôle in the development of allergic contact dermatitis to tetryl and TNT,

the number of trichophytin positive cases should have been higher in this group than in those who did not have a sensitivity to these explosives.

The allergic manifestations of fungous infections of the feet are usually seen as vesicles, scales, and eczematization on the hands. Such breaks in the skin make easier contact between industrial irritants and the living layers of the skin, and thus may make the development of sensitization or primary irritation easier. It is not the sensitivity to the fungi or their products which may do this, but a mere mechanical removal of anatomical protective barriers. The same rôle would be played by any break in the skin which is due to metal slivers, scratches, or the action of primary irritants.

Among the 2,123 cases which we studied there were only 3 cases with "ids" on the hands.

It can be seen from what has been said that fungous infections play a very minor rôle as causes of absenteeism, and that sensitivity to fungi while it is of frequent occurrence plays no important rôle as a predisposing factor to the acquisition of other allergic contact dermatoses. Since 20 per cent of industrial dermatoses are said to be of allergic origin, and since 1 per cent of all workers have occupational dermatoses, only 0.2 per cent of all workers have allergic occupational dermatoses. Even if fungous allergy were to play a rôle in the development of allergic contact dermatitis, it could only concern 42 per cent of the 0.2 per cent of all workers or 9 in 10,000 workers.

Differential diagnosis of "phytids" from occupational dermatoses

The differential diagnosis of trichophytids from contact dermatitis of occupational origin may be a difficult but an infrequent problem. This is shown by the fact that in our studies we only saw 3 cases of "ids" on the hands.

The skin diseases due to fungi are divided into those directly due to fungi and end in the suffix *sis* as trichophytosis, and those due to the development of sensitization to the fungi and/or their products which have been grouped under the heading of trichophytids, or "ids." The clinical manifestations of the "ids" usually develop after the primary infection has existed for some time. The incubation period for the development of this hypersensitivity depends to some extent on the type of fungus, on individual predisposition, as well as other factors which cause more intimate contact between the fungi and the living cells of the skin.

The fungi themselves live only on the dead layers of the skin. They are practically saprophytic and only produce manifestations on the feet when a hypersensitivity to the fungi or their products has developed. Once hypersensitivity has developed, trichophytids may develop on other parts of the body by the hematogenous dissemination of fungi or their products.⁵

While there are many forms of trichophytids, the one which is most frequently encountered as secondary to fungous infections of the feet is the vesicular and eczematoid eruption on the hands. The other forms are so rare that they can be almost disregarded as far as differential diagnosis from industrial dermatoses is concerned. It is the eczematoid trichophytid on the hand which presents diagnostic difficulties. It is also possible to have a superimposed contact occupational dermatitis on an "id."

The following criteria are of practical value in differential diagnosis:

1. The presence of an active fungous infection should be established before the diagnosis of a trichophytid is considered.
2. The trichophytin test must be made and it should be positive before a diagnosis of "id" is considered. A negative trichophytin test rules out the possibility of an "id." It must be borne in mind, however, that a positive trichophytin test alone does not establish the diagnosis of an "id."
3. The eruption on the hands suspected of being an "id" should not improve after removal of contact with known or suspected industrial irritants, unless there is a superimposed contact occupational dermatitis.
4. No improvement of the eruption on the hands should occur when fungous infections on the feet are treated successfully if we are dealing with an occupational dermatitis.
5. The clinical appearance of the eruption must be borne in mind.
 - a. Trichophytids are more frequently seen on the palms and on sides of the fingers, flexor portion.
 - b. Contact dermatitis is most often seen on the dorsum of the hands.
 - c. Trichophytids are usually symmetrical.
6. In spite of the clinical appearance and a positive trichophytin test, patch tests with suspected chemical irritants should be made. If the patch test is positive and the trichophytin test is positive, there is a possible combination of an "id" and a contact dermatitis.
7. Trichophytids can be exacerbated and eczematized by scratching, by primary irritants, or therapy.
8. Lesions on the hands resembling trichophytids can sometimes be caused by distant foci of infection due to bacteria or monilia.

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Relationship of the U. S. Public Health Service to State and Local Health Units

E. S. TISDALE

Senior Sanitary Engineer, U. S. Public Health Service, Washington, D. C.

OUR resources and concepts of public health and public health engineering are being severely tested in World War II. No one who reads the signs of the times can deny that the base of the pyramid upon which public health is erected is broadening. The experiences of the medical and sanitation officers in the military forces, the growing appreciation by the general public of the value of medical and sanitation services convinces us that a new era of federal-state coöperative effort is here.

One of the events which indicates the trend of the times is the action of Congress in providing a broader base of operation for the Public Health Service and for public health engineering through the passage of the Reorganization Act of the U. S. Public Health Service—Public Law 410 of the 78th Congress, approved July 1, 1944. Through one of the provisions of this law, the Sanitary Engineering Division, which is an outgrowth of the former Sanitation Section in the States Relations Division, has been created. It is a Division in the Office of the Surgeon General, where the Commissioned Officers Division, the Dental Division, the

Nurse Education Division, and other administrative officers are located.

There are three other major Bureaus as follows:

1. The Bureau of Medical Services relates to work in the field of curative medicine. Under its direction come the Hospital, Foreign Quarantine, and Mental Hygiene Divisions.
2. The Bureau of State Services includes all the grant-in-aid programs, administered by the States Relations Division, the Venereal Disease Division, and the eleven District Offices.
3. The National Institute of Health carries out all scientific research activities and includes the National Cancer Institute. Several laboratories are housed in well equipped new buildings at Bethesda, Md., the present headquarters of the Service.

The Stream Pollution Investigations Station which formerly came under the jurisdiction of the National Institute of Health has become a part of the Sanitary Engineering Division and is now known as the Water and Sanitation Investigations Station. Assistant Surgeon General J. K. Hoskins, in charge of the division, has plans for building a new laboratory at Cincinnati, Ohio, where coöperative activities with states and industries on industrial wastes and stream sanitation may be undertaken.

EMERGENCY HEALTH AND SANITATION ACTIVITIES PROGRAM

The war made it necessary for the Service to assist the states in several

* Presented at a Joint Session of the Conference of State Sanitary Engineers, the Conference of Municipal Public Health Engineers, and the Engineering Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 3, 1944.

hundred war areas. Congress provided \$8,000,000 in 1941 to give this assistance primarily in sanitation work requested by the state health officers. At this time it is of interest to note briefly the accomplishments of the expanded cooperative activities in war areas with the states in the fields of (1) industrial hygiene, (2) malaria control, (3) extension of water and sanitation facilities, (4) typhus fever control, and (5) the orientation of new public health personnel. Public Law 410 authorizes the "Emergency Health and Sanitation Activities" program to remain in force during the demobilization period.

INDUSTRIAL HYGIENE

The industrial hygiene program has had a phenomenal growth due to the wartime demands of industry, governmental agencies and states which requested help and advice. The War Manpower Commission and War Production Board needed assistance while the Army, Navy, and U. S. Maritime Commission requested inspections of hundreds of ordnance plants and shipyards. The states requested help, and to meet the issue, the Division of Industrial Hygiene took the leadership in recruiting, orienting, and assigning doctors, engineers, and chemists to states, and in developing new industrial hygiene units throughout the country. It is reported that at the present time the state industrial hygiene personnel consists of 47 physicians, 187 engineers and chemists, and 23 nurses. This is only a nucleus from which expansion can take place in the field of industrial sanitation.

MALARIA CONTROL

A sanitary engineer has been directing the engineering features of the "Malaria Control in War Areas" programs during 1942 and 1943, and since January 1, 1944, has been in charge of the entire program. Five million dol-

lars was appropriated by Congress for carrying on this joint malaria control program in which the state health departments, the military authorities, and the Public Health Service are cooperating. Eleven hundred and sixty-one Army, Navy, and war connected establishments in 317 counties in 21 states are affected. Malaria, the number one disease of importance in this war from its killing and crippling aspects, is now at its lowest rate in history in the United States. Without this carefully planned and well coordinated program there would be great danger of spread of several virulent strains of malaria brought back from the tropics by the returning military forces invalided home, and by prisoners stationed in prisoner of war camps.

SANITATION IMPROVEMENTS IN WAR AREAS

Congress authorized and appropriated 415 million dollars under the Lanham Act to assist war areas in expanding needed community facilities such as water and sewerage systems, hospitals, and public health centers. Seven hundred and forty-six sanitation projects, including 362 water supply systems, 354 sewerage systems and sewage treatment plants, and 30 miscellaneous sanitary projects have been or are being completed. One hundred and twenty-five million dollars was made available in grants and loans from this 415 million dollar appropriation, to cities and towns who contributed 31 million dollars of local moneys, or approximately 20 per cent. Five hundred and twelve of the projects costing 84 million dollars were in operation at the end of the fiscal year. Typhus fever of the endemic type has been increasing in civilian areas around certain Army camps, and the Service assigned newly acquired personnel, commissioned in the Reserve Corps, to work with cities and states in rat control programs to reduce

typhus fever. Outbreaks of food poisoning in increasing number in these war areas led to requests from the states for additional personnel, both sanitary engineers and sanitarians to improve milk and food sanitation.

ORIENTATION COURSES FOR NEW PUBLIC HEALTH PERSONNEL

To meet these requests, an intensive recruitment and in-service training program was instituted in April, 1941. During the 16 courses held at Bethesda, Md., from 1941 to 1944, 1,012 medical officers, sanitary engineers and sanitarians, public health nurses, laboratory workers, and health educators completed the 4 week course and were assigned to assist state and local health departments. Classification of these new public health workers is as follows:

| | |
|--|-------|
| Sanitary Engineers, Sanitarians, and Veterinarians | 351 |
| Medical Officers and Dentists..... | 347 |
| Public Health Nurses..... | 233 |
| Laboratory Workers | 34 |
| Health Educators and Miscellaneous.. | 47 |
| Total | 1,012 |

The Public Health Service realized that to make these new workers successful, they must grasp and understand the unique federal-state relationship for coöperation in public health activities which has been fostered and developed through many decades of hard work together. Many of the present leaders in the Service have served the states administratively as health commissioners or state sanitary engineers in their earlier careers, and through this experience have a rare sympathy with and understanding of state problems. Two of the instructors at the orientation classes, Dr. A. J. McLaughlin and Lieutenant Stanley Drexler, concisely emphasized points of policy for these new workers.

Dr. McLaughlin said, as he emphasized the police powers of the state:

For practical purposes satisfactory results can be secured by utilizing state power alone, coöordinated with the Public Health Service in a national program. The ideal relation between federal and state governments in public health work should be such as to insure the covering between them of the entire field of public health.

Lieutenant Drexler, speaking on Public Health Law, pointed out that:

The most impressive thing about the study of federal legislation pertaining to public health is the extent to which Congress has leaned over backward to (a) keep the federal government out of the day-to-day public health work, (b) keep the public health worker under control of the states and municipalities, and (c) make the federal government a center of research, a center for the exchange of ideas, and a sort of over-all adviser. Much, if not all of the past prestige of the Public Health Service in the field of federal-state relations has been contained in the persuasive and coöperative powers of the Service rather than in its legal powers.

U. S. PUBLIC HEALTH SERVICE IN ITS PUBLIC HEALTH RELATIONSHIPS WITH OTHER FEDERAL AGENCIES

Just as the emergency health and sanitation program of assigning approximately one thousand new Public Health Service officers to states in World War II was an expansion of a policy successfully used in World War I when a few doctors and engineers were assigned to states, so too the policy of assigning Public Health Service officers to other federal departments was greatly expanded during the present war. Such a policy had been utilized for many years in working on sanitation and public health programs in the National Park Service, the Federal Bureau of Prisons, the Indian Service, and the Farm Security Administration. Now in the war period, Service officers have been assigned to more than 30 departments relating to public health activities in 22 different federal agencies. Two

examples will be given to illustrate how such a policy reacts favorably upon the states and makes for harmony and progress when Service officers with a proper understanding of federal-state relationships are assigned to other federal agencies on public health activities. Standardization of public health administration in all the departments of the federal government is enhanced thereby.

Housing of millions of war workers on construction of Army and Navy establishments and at work in new war industries has been a major problem of this war. Sixteen different housing divisions were working at cross purposes until President Roosevelt by executive order, brought them under one head, the Federal Housing Agency, in 1942. At the request of this agency, a sanitary engineer, a medical officer, and a statistician were assigned to the headquarters office in Washington, and one experienced Service engineer officer was assigned to each regional housing office. Then by tactful and intelligent field work with the state health departments, one by one the troublesome sanitation problems connected with site selections, drainage, water supply and wastes disposal, were solved.

Recently, at the request of Procurement and Assignment Service, War Manpower Commission, a Service engineer was assigned to that agency to work with the states in determining the essentiality of sanitary engineers, and at the same time to cooperate with the Surgeon General's Office, U. S. Army, and U. S. Public Health Service to obtain approximately 300 additional sanitary engineers for the Army and U. S. Public Health Service. Since the Public Health Service is working closely with the states on public health activities, and since the state sanitary engineers are serving as state advisers to Procurement and Assignment Service, War Manpower Commission, this plan

should make for harmony and efficiency in obtaining additional sanitary engineers for the Sanitary Corps of the Army, without endangering civilian public health.

STREAM SANITATION

Another zone of activity where it appears likely that the Public Health Service may continue cooperative work with states and cities in the post-war period is that of stream sanitation. The Ohio River Pollution Survey, a joint undertaking of the U. S. Army Engineers, the states, and the Public Health Service, has been completed and the findings have been published. It furnishes a financial and economic basis for intelligently planning improvements through building sewage treatment and industrial wastes disposal plants in the Ohio Valley. Bills have been introduced in Congress by Senator Barkley and Representative Spence of Kentucky, which are identical and provide for the establishment of certain responsibilities and duties relating to water pollution control in the U. S. Public Health Service. Cooperation with the U. S. Army Engineers and the U. S. Fish and Wild Life Service is provided through the creation of an Advisory Committee of five persons which include two members outside the government.

Under this proposed legislation, appropriations are authorized for grants-in-aid and loans for construction, administrative expenses, and allotments to states for studies necessary in the prevention and control of water pollution. The program would fit admirably into a post-war construction plan. In many states meetings have been held in different sections and preparations are being made for comprehensive stream improvement. This legislation has been designed to hold a middle course between the parties favoring federal control and those preferring state control.

PUBLIC HEALTH ADMINISTRATION IN METROPOLITAN AREAS

Encouraging evidence is at hand that the administration of public health engineering in some of our larger cities is showing definite improvement. Perhaps three factors enter into this result:

1. The establishment of an effective civil service system
2. The selection and appointment, with power to act, of a competent public health engineer who plans and conducts regularly in-service training activities for the members of this staff
3. An improved relationship between the sanitary engineer and the trained qualified sanitarian, who, due to the war emergency, have learned how to work better with each other.

The Public Health Service is endeavoring to promote the extension of civil service systems in cities. As a result of such assistance, given recently to a large western city, meritorious progress is now under way and the public health engineer in charge has achieved a fine spirit among his sanitarians on the staff. Weekly in-service training courses are conducted with excellent results. In another instance a Service officer was assigned to a large eastern city and progress is commendable, aided again by well planned in-service training courses. The Service might give consideration in the post-war period to giving specific help and assistance in the municipal sanitation field upon request. Frequently it has been noticed that the stability evidenced in the state health department engineering organization, through the classification and salary schedules, brought about by the grant-in-aid programs, reaches out into the cities and counties of a state.

TRAINING PROGRAMS TO REBUILD STATE AND LOCAL HEALTH DEPARTMENT STAFFS

It is no exaggeration to assert that the training programs for sanitary en-

gineers and sanitarians carried out with Social Security funds from 1934 to 1941, through training grants by states, produced a reservoir of trained sanitation personnel. From this source the Army, Navy, and Public Health Service have drawn over 1,300 qualified commissioned officers to administer war-time sanitation activities. A splendid unity of purpose and effort has prevailed between the states and the federal services, one factor in which has been the coördinating and stimulating influence of the Sanitary Engineering Committee of the National Research Council. In this body all the military and civilian activities relating to sanitary engineering war needs are brought to a focus, and direct remedial action has been taken when necessary. It is evident that many trained public health engineers have left their civilian life for a career service in the military forces or the Public Health Service. Hundreds of vacancies now exist in city, county, district, and state health department staffs. It appears likely that people with a growing appreciation of the worth of public health will ask for more extensive sanitation services in the fields of industrial hygiene and municipal sanitation after the war. No graduates are coming, or will come from our universities for some years. What then is the answer?

There is only one answer. New long-time training programs will have to be reestablished in the universities. Short-time courses of 3 and 6 months' duration can be set up as refresher courses for some of the men returning from overseas. In-service training courses in state health departments, and food handler training courses in cities, carried on coöperatively by the U. S. Public Health Service and states have demonstrated their usefulness. Training and educational activities are now being launched on a large scale by the government to aid the veterans. With the press-

ing demands for sanitary engineers and sanitarians in civilian health departments, and new training programs being inaugurated, is it not advisable for steps to be taken in each state so that the best possible use may be made of the training facilities and opportunities? Demobilization centers are being established where advice can be given to sanitary engineers returning to civilian life, about retraining and reemployment. Should there not be in each state health department a competent public health engineer charged with the duty of training personnel, ready to

work with the federal and state agencies which administer the new training programs?

Consideration could be given to utilizing, when peace comes, the central Roster for Sanitary Engineers which is now being developed under the imperative war demands to secure sanitary engineers for military service from civilian life.

Perhaps we can then reverse the process and utilize the roster to assist the veterans in reestablishing themselves in the expanded public health activities of peacetime.

Medical Social Work Scholarships

The National Foundation for Infantile Paralysis has supplemented its original grant to enable the American Association of Medical Social Workers to award scholarships for professional education in medical social work effective with the fall terms 1945. The Foundation grant is offered because of the greatly increased need for medical social workers not only in hospital social service departments but in a wide range of programs under governmental auspices offering public health or medical care services for the control of disease and the alleviation of handicap. Although the primary interest of the Foundation is in the control and treatment of infantile paralysis, this scholarship grant is being made available to increase the total supply of well quali-

fied medical social workers in recognition of the fact that medical social work contributes to the rehabilitation of handicapped persons. The current heavy demands from programs for crippled children and for the rehabilitation of veterans and disabled civilians offer a special challenge which can be met only as the number of professionally educated medical social workers is substantially increased.

Application blanks with full instructions may be secured from the deans of accredited schools of social work or from the office of the American Association of Medical Social Workers. The completed application should be returned to the Association office at 1129 Vermont Ave., N.W., Washington 5, D. C., on or before July 20, 1945.

Tips and Tricks for the Practice^{*}

SAVEL ZIMAND, F.A.P.H.A.

*Director, Bureau of Health Education, City Department of Health,
New York, N. Y.*

THE title "Tips and Tricks for the Practice," I hope, has not beguiled you into the alluring but false impression that health educators are exponents of magic. I only wish we were. How wonderful it would be if, merely by waving a wand over a group of mothers, we could instantly convince them of the value of immunization! What a boon it would be if, by chanting a voodoo spell, we could drive the evil demons of tuberculosis out of our slum neighborhoods. And imagine the sheer delight of having a black silk hat from which we could pull endless strings of pamphlets so effective that all who saw them would instantly resolve to eat the right foods, sleep eight hours each night, visit their doctors for annual check-ups, take long walks in the fresh air—and have a blood test for good measure!

Unfortunately, however, no such panacea exists for health educators. The success of our activities still depends, in large part, upon hard work and careful planning. For this there is no substitute. However, although magic is of no avail, there definitely are promotional "tricks of the trade" which can help make our efforts more successful. Some of these "tricks" are similar to those employed by the publicist and commercial advertiser to

create new interest in and acceptance of his product.

To be sure, health is far more precious than any of the products sold by the advertisers. Naturally, too, educating for health is a far more complex problem than selling chewing gum, soap, or shaving cream. But if we are to do our job more effectively and reach the largest possible number of people, we would do well to keep an eye on the commercial advertiser's techniques. It is evident that we cannot hope to match his vast expenditures and top-flight talent, but so far as is practical, we should try to take advantage of the up-to-the-minute methods which he employs. We realize of course that these are simply tools to facilitate some of the *promotional* aspects of our work.

In our literature, for example, we must realize the importance of a snappy layout, of copy that "sparkles," and of careful timing. We must also learn more about harnessing our appeals to the basic human drives of love, vanity, and the desire for security—a practice which has long been successfully employed. Another basic technique is that of *repetition*. In order to create a market for his product, the manufacturer must tell his story over and over again until the public not only believes it, but *acts* upon it without conscious deliberation. Take a catchphrase like the well known "Lucky Strike Means Fine Tobaccos!" or the anacin slogan "Like a doctor's prescription: not just one, but the com-

^{*} Presented before the Public Health Education Section of the American Public Health Association at the Seventy-third Annual Meeting in New York, N. Y., October 4, 1944.

bination of *several* medically proven and tested ingredients." These statements may not bear up well under critical scrutiny but, encountered day after day on the radio and in the pages of our newspapers and magazines, they tend to build up a ready acceptance for their product. I am not, of course, implying that we should resort to the repetition of half-truths in health education. But we will all agree that sustained effort—or repetition—is absolutely essential to the learning process. Isolated activities, no matter how well they are planned and executed, are of little value. Like a night display of fireworks, the impression they create may be brilliant, but it is never lasting. To be truly beneficial, our health education activities must be backed by constantly varied repetition of our messages until they become part and parcel of the public's health concepts.

At times some of us may have looked with disdain upon some of the methods employed by the advertiser, and rightly so; but in doing this we may have overlooked some of the techniques which could be of value in "selling" health to the people. Only too often, we have allowed the initiative to slip out of our grasp and into the hands of advertisers. For example, the manufacturers of vitamin products have long conducted high-powered and so-called educational campaigns of their own in a clearly recognized health field, with little competition from public health workers. The typical man-on-the-street is thoroughly sold on the "virtues" of "Hi-Pep Concentrated Vitamin Capsules" and takes them religiously day after day, gladly spending dollar after dollar for what he believes is a health essential. Unfortunately, his knowledge of the foods his body requires all too often begins and ends with his vitamin pills. There are today too many Americans who make a ritual of gulping down their daily capsule, never

realizing that they can obtain all the foods they need in a *natural* and more economical form merely by eating wisely.

The same situation holds true of patent medicines. Over their radios and through their magazines and newspapers, Mr. and Mrs. Average American are constantly barraged with enticing facts about "XYZ Headache Powders" or "Speedee, the *gentle* laxative." And chances are, their medicine chests are well stocked with these remedies. But how good it would be if they were made equally well aware of the relation of diet, regular exercise, and periodic medical examinations to such conditions as headaches and internal sluggishness. We cannot, of course, expect advertisers to "cut their own throats" by urging the public *not* to use their vitamin pills, headache remedies or laxatives. But, since advertising exerts such a strong influence in moulding the people's health concepts, we can expect commercial advertisers to avoid extravagant claims and misleading statements. We must also see to it that they do not maintain a "monopoly," and that their statements on nutrition or headaches are supplemented by unbiased information on the same subjects.

Naturally, such a concept implies some sort of check-up of commercial health advertising—a check-up that extends beyond the regulations now imposed by the Federal Trade Commission. Perhaps a national advisory council on a voluntary basis might be created to assure that commercial advertisements dealing with health matters comply with sound principles of public health education. Such a council should, of course, include representatives of the advertising, radio, civic and public health fields and have sufficient standing to nullify any sales messages on health matters which it deems harmful to the welfare of the community at

large. Such a step seems to me absolutely necessary if the public's health thinking is to be guided along sound health lines.

It can readily be appreciated that health education can never operate in a vacuum. Rather, it must be thoroughly integrated into every aspect of our everyday lives. We have already noted how advertising influences the health concepts of the average man and woman. In the same manner, the motion pictures we see, the radio programs we hear, the houses we live in, the merchandise and displays of the shops we patronize, the fashions in the clothing we wear, the literature we read—these and a thousand and one other things can and *do* affect our health thinking. If the influence they exert is to be wholesome, they must be created by men and women who are health conscious and health informed.

It seems to me that one of the most challenging tasks facing the public health education worker today is to get his community organized to do its own health education job. The most successful health education projects are those which "begin at the bottom" and blossom forth through the interest and voluntary participation of the members of the community. Such projects can never be superimposed from the top upon a public which is indifferent or actually antagonistic. Today's health educator should strive to make the people aware of their health problems and then interest them sufficiently so that they will join in and *do* something about them. In addition to working with mothers, children, and factory workers, he should make every effort to win the active coöperation of the advertiser and radio producer, the journalist and the merchant, the architect and the stylist. Only in this way can he hope to achieve a health education program of maximum efficiency. Without this community interest and com-

munity organization, promotional techniques—necessary as they are—remain only trimmings. Community activity is the most powerful educational force.

So much for certain general aspects. And now, I would like to mention a few specific things the New York City Health Department is doing in the promotional field of health education.

To begin with, I shall outline rapidly the more usual techniques used throughout the past year. As in most other city health departments, our Bureau of Health Education relies in part upon printed literature and turns out a fairly large stream of folders, booklets, handbills, and posters on a wide variety of subjects. In addition, we present weekly radio programs as well as innumerable lectures, motion picture programs, and exhibits at health centers, clubs, churches, factories, schools, and other neighborhood meeting places throughout the city. Through close coöperation with our physicians and public health nurses, we attempt to adapt all of these tools as closely as possible to the actual needs of the people. As far as our budget will allow, we have tried to make our printed literature as attractive and readable as possible. Various simple devices have been used to increase eye-appeal. We have made extensive use of gay colors and unusual formats. Off-center folds have been employed to provide a distinctive appearance to what might otherwise be a completely routine folder, and, wherever practical, we have tried to heighten interest by "saying it with pictures." We have also experimented with varying success in the field of color combinations. As to the copy itself, we have endeavored to present our material simply, with as few "twelve cylinder" medical terms as possible. We have tried, too, to maintain a positive approach, dwelling on the advantages of health rather than upon the disadvantages of disease.

One of the most effective devices we have employed during the past year is our subway window posters. We have found that these posters provide a most effective medium for bringing urgent health messages to the immediate attention of the people. Numbering their audience by the millions who daily ride New York subway and elevated lines, the window posters are large enough to attract attention. Since they are mounted approximately at eye level on the car windows, they do not have to compete with the numerous, brightly-colored car cards displayed above. The New York City Health Department has already presented four of these posters so far in 1944, and plans are under way for two additional ones to be used before the end of December. One of these, *Terry and the Pirates*, was on tuberculosis and, because of the established popularity of the artist, proved almost too popular. No sooner had they appeared, than young "Terry fans" began stripping them off the windows. Although this was a distinct disadvantage, at the same time it afforded pleasant proof that the posters were definitely seen and appreciated. And that, after all, is the ultimate aim of all good publicity anyway!

Another health education device employed by the bureau is the motion picture "trailer" of the type used to advertise coming attractions. These short trailers proved most valuable in that—when they are shown at one or more chains of theaters—they command the attention of a large group of people. I use the term "command" quite intentionally, since a message flashed on a theater screen is unique. Unlike a poster, car card or pamphlet, it has no competition—no adjacent material to distract attention. It is the one and only illuminated area in a darkened auditorium and in this sense actually "commands" the attention of a large percentage of the audience.

Another advantage of the trailer as a health education tool is that its message can be confined to one specific area. Whereas subway posters and radio programs are seen and heard throughout the city, motion picture trailers can be shown at theaters in a selected district to meet a purely local health need. When an outbreak of rabies occurred in the Borough of The Bronx in 1944, the Bureau of Health Education prepared a set of trailers appealing to dog owners to keep their pets leashed when out-of-doors. Arrangements were made to have these trailers shown at neighborhood theaters throughout The Bronx, and in this way the Health Department's message was widely seen throughout the affected area of the city.

In addition to our regular daily and weekly radio health talks, the bureau has recently made extensive use of short "spot announcements." As the commercial advertiser knows, a snappy spot announcement sandwiched between longer programs and repeated throughout the broadcast day, is likely to reach more people and leave a more lasting impression than many a well planned and executed quarter-hour broadcast. Therefore the bureau has produced quite a variety of "spots," some written as straight announcements and others prepared in the form of rhymed jingles or as one-minute dramatic sketches. We have even considered musical spot announcements, but, although we have prepared some, up to the present time we have left these to "rinso white," Lifebuoy, and Pepsodent. A minimum of six spot announcements on current health problems are now being sent out each month, both to the municipal broadcasting station and to the large network stations of the city.

It has also been the policy of the bureau to prepare health statements of special importance for inclusion in

Mayor LaGuardia's regular Sunday broadcasts. In view of the large audience which the Mayor commands, this has proved a most valuable way of reaching a sizable proportion of the city's population. Health departments in other cities might also find it worth while to prepare occasional statements for delivery over the air by local officials in their regularly scheduled broadcasts.

Before getting away from the subject of radio, I might mention one further device employed by the bureau. In order to supplement our supply of printed literature, we have adopted the practice of converting some of our radio scripts into varityped booklet form. They are conveniently sized for easy mailing and have proved most useful in rounding out the department's selection of health pamphlets for free distribution.

In addition to the health education tools I have just described, we have a few additional "tricks" up our sleeve, some of which we have used before and plan to use again, and still others which have yet to be put to the test. For example, we are contemplating printing health messages on the covers of inexpensive paper match holders where the user will see them again and again each time he lights a cigarette, cigar, or pipe. This has been done before, of course, but most often the match-cover messages have publicized a brand of razor blades, laxative, or smoking tobacco. Another likely spot for a health message is the cover of the telephone directory. As one of the most frequently used reference books, the directory offers an ideal display space for creating repeated impressions. Still another valuable medium of health education is the humble "stuffer" designed to be tucked into pay envelopes or slipped in with the monthly statements of department stores or utility companies.

Other insufficiently used media which

might prove worthy of further development include the reverse side of a street car and bus transfers, small decorative easel-type counter cards and table cards to carry brief nutrition messages to restaurant diners, as well as messages printed on ordinary brown paper shopping bags. And, finally, a more aggressive attempt might be made to interest public spirited advertisers (particularly department and chain stores) in including health material in their newspaper advertising. We have done some of this.

Perhaps one of the great developments which loom over the post-war horizon is television. Once we are able to combine the visual elements with that of sound, it will be easier to add interest and drama to otherwise routine health subjects.

With the advent of color film television, imagine what mouth-watering possibilities are in store. By the same token, in post-war years, our radio speakers need not be content with merely telling mothers that immunization is simple and quick and painless. By moving a television camera into the child health station they will be able actually to see for themselves a typical group of babies being immunized, and since "seeing is believing," such messages will take on an added degree of authority.

I would like to tell you about something which—while it is not in itself a health education device—has helped step up the efficiency of our health education activities. I am referring to our recently assembled *Catalogue of Approved and Rejected Literature*. Health workers these days have access to a vast amount of literature turned out by food and drug manufacturers, life insurance companies, welfare agencies, and branches of the municipal, state, and federal government. While much of this literature meets our own particular standards for accuracy and effective-

ness, there are many booklets available which are obsolete, misleading, or in some other way undesirable. In order to aid its field directors in separating the wheat from the chaff, the Bureau of Health Education has prepared a catalogue of approved and rejected literature. Based on the collective evaluation of health department physicians and specialists, this varityped booklet makes it easy for our field workers to determine at a glance what literature should be distributed on a specific health subject. As new publications appear,

they are reviewed and added to the present listings.

I have tried to outline some of the promotional devices we can employ in our work. There are, of course, many other techniques, but it is impossible to do justice to them all. Suffice it to say, we health educators have a tremendous number of tools at our disposal. If we succeed in employing even half of them with sufficient imagination and skill, we will have no need of "magic" tricks to achieve real victories over preventable disease.

Navy Public Health Unit to Aid Greek Government

At the request of the Greek Government, a U. S. Navy Public Health Unit left recently for Athens to curb disease, restore and improve sanitary facilities, disseminate public health education and do everything else in its power to ameliorate living conditions among the people crushed by years of enemy occupation. The unit of fourteen men is under the command of Comdr. Theodore R. Meyer of Sag Harbor, L. I., N. Y. Functioning directly under the Naval Attaché to the American Embassy in Athens, the public health group will direct its

attack particularly against tuberculosis, typhoid, malaria, syphilis, typhus, and trachoma.

The lack of adequate food, clothing, housing, hospitals and sanitary facilities has precipitated conditions whose correction and relief are expected to tax the naval "trouble shooters" to the utmost. With them they took more than a ton of chemicals, drugs, biologic products and other supplies, to be replenished as warranted. Lieut. Comdr., W. J. Dougherty of Beverly Farms, Mass., is second in charge of the unit.

Cross-connections and Back-siphonage Connections Under War Conditions*

RAPID industrial expansion and the tremendous development in land and sea transportation for military purposes have aggravated the problems associated with cross-connections and back-siphonage connections. As a consequence, public health disabilities have occurred and have stimulated a review of the whole situation in order to eliminate detectable hazards and prevent future accidents. A Temporary Subcommittee on Cross-Connections, Warren J. Scott, *Chairman*, was requested to study the situation prevailing in 1943, to scrutinize such rules and regulations as had been promulgated by military, semi-military, and civilian agencies, to recommend modifications in policies and in practice on the part of these control groups, and to summarize its conclusions and recommendations for needed action.

Their findings have been made public by the Committee on Sanitary Engineering, with the approval of the National Research Council and the Surgeons General of the Army, the Navy, and the Public Health Service. Because they have significance for the public health profession, the JOURNAL presents the conclusions and recommendations in full. The entire report may be obtained from the National Research Council, 2101 Constitution Avenue, Washington, D. C.

CONCLUSIONS AND RECOMMENDATIONS

1. It is recognized that the ultimate ideal in the field of cross-connection control is to develop potable water supply distribution to the point where auxiliary water supplies are

not necessary, but this ideal cannot prevail at ship-side locations. Moreover, in addition to cross-connection considerations, the possibilities of back-siphonage with plumbing systems, process water systems, and sewer systems exist. This subcommittee recommends that steps be taken to protect back-flow connections between potable and non-potable water supplies including those at pierheads and industrial water-using processes and between potable water supplies and sewers or drains.

2. Personnel assigned to operating water supply connections and equipment should be adequately instructed and should be supervised at all times; such personnel should be furnished a clear statement as to duties and responsibilities with respect to the protection and safety of the water supply.

3. Every connection with a plumbing system which will permit back-siphonage should be eliminated when possible; otherwise it should be provided with an approved type of vacuum breaker.* Whenever there is possible occurrence of vacuum in a water pipe, means for rapid dissipation should be provided.

4. Every process water connection should be separated from the potable water supply by Method 1,† unless due to local conditions or as a temporary measure Methods 2 † or 3 † are permitted by the local water and health authorities having jurisdiction. Process water connections should receive attention both within and without buildings and include connections to process water tanks and recirculating systems.

5. Every direct cross-connection between potable water lines or apparatus holding potable water and sewers or drains should be broken, and air gap separation should be used.

6. Where pipes for potable and non-potable water exist, such as in industrial plants or on vessels or docks, pipes should be so painted, posted, or otherwise marked as to be distinguishable readily; where possible, all outlets of non-potable water lines should be made unavailable for drinking. All shore connections into which fire boats may pump

* Based on *Sanitary Engineering Report 8*, of the Committee on Sanitary Engineering, Abel Wolman, Dr. Eng., Chairman, Division of Medical Sciences, National Research Council.

* ASA (A 40.4—1942; A 40.6—1943).

† The methods referred to are described at the end.

should have distribution systems separate from systems carrying potable water.

7. In many cases the inadequacy of pipe lines conveying water to pierheads from approved sources has tended to promote the use of unapproved auxiliary water supplies at pierheads. It is recommended that federal agencies institute a survey of water service and distribution pipe adequacies at pierheads.

8. During the war emergency, protection of the shore users near pierhead connections should be afforded at or near the property line by Methods 3 † or 4 † on domestic and fire lines carrying potable water.

9. *In addition to protection at the property line*, back-flow preventive devices should be installed at each ship-side outlet, whether for domestic or fire service. Method 3 † represents the best type of protection and should be used for protection of each individual ship-side outlet on fresh water fronts where freezing temperatures are not encountered and so far as practicable at all other locations. However, under some conditions, modifications of the use of Method 3 may be desirable so that the following substitute methods are considered permissible for the following conditions:

Pierheads in locations on fresh water fronts where freezing temperatures are encountered. Method 3 † to be installed on all lines leading to individual piers (except when there is only one pier and the pipe line entering the property is already protected by Method 3), and Method 5 to be installed on each individual ship-side outlet.

Pierheads in locations on salt water fronts. Method 5 † installed on each individual ship-side outlet is minimum protection. This affords less protection than Method 3 and is distinctly inferior, but a considerable degree of reliance can be placed on the prompt detection of contamination when due to salt water. Protection of lines leading to individual piers is desirable but is not considered mandatory at such locations.

10. All cross-connections between potable and non-potable water supply lines on vessels should be broken and so maintained, as outlined in the current regulations of the U. S. Coast Guard and the U. S. Army. If in an extreme emergency a cross-connection is made on a vessel between a potable and a non-potable water supply, immediate steps should be taken to notify all persons against use of water without being boiled, and all pipes and tanks contaminated should be disinfected after the emergency cross-connection

has been broken. Supervisory medical officers or health authorities should be notified as to the cross-connection.

11. The use of double check valves as a method of prevention of back-flow described in Method 4 † is inferior as a substitute for Method 3, † even on 6 inch water lines or larger, despite the fact that such valves where given adequate maintenance and supervision have been used with a considerable measure of success on many old installations. The weakness of double check valve protection *per se* is that the forces responsible for back-flow—pressure differential and vacuum—are not destroyed.

12. In connection with the use of the "Methods" referred to in the above recommendations, there may be certain instances where special supplementary protection against vacuum or against excessively high pressures should be afforded to aid in back-flow prevention. Because of the many varying conditions encountered no attempt is made to cite such special locations, but "Supplementary Protective Steps" are discussed under "Methods."

13. All back-flow preventive devices as listed herein should be selected on the basis of approved design supplemented by operating experience under varying conditions and should be tested and approved by laboratories of recognized national standing with experience in this field. Devices should be designed with due regard to possible effects of corrosion, incrustation, or other deterioration and should be so constructed as to be inspected and repaired readily. Back-flow preventers should be properly installed under competent supervision in such a manner that no back-flow of contaminating substances through ports or pipes in the devices is possible under any hydraulic conditions. Approved preventers should be marked as to make, type, size, and direction of flow.

14. Attention is directed to the need for careful installation of back-flow preventive devices to avoid introduction of contamination by the devices themselves. They should be installed where possible above flood level. Where this is not possible, special precautions should be taken. All devices should be installed so as to be readily accessible for testing and inspection and should be properly equipped for necessary testing. Internal inspection and repair should be carried out at least annually, and tests should be made on a more frequent basis.

15. Effort should be made by federal

† The methods referred to are described at the end.

agencies to promote adoption of state and local codes controlling water piping and plumbing.

16. Local water, health, and building departments should coöperate and establish a coördinated program to investigate and correct existing dangers from back-flow and to control new installations of water and plumbing systems in buildings. Local inspection staffs can undoubtedly be employed to good advantage in this field.

17. The appropriate federal agencies should establish a unified national program and work with state and local agencies to correct and control dangerous back-flow conditions. Such a program should include the principles and procedures outlined in this report. Specific regulations and instructions for responsible federal personnel should be adopted, and these should cover instructions to the level of the water foremen and engine-room workers on vessels. Training courses for personnel are needed and should be established.

METHODS OF PREVENTION OF BACK-FLOW INTO POTABLE WATER SYSTEMS

Varying degrees of protection against back-flow of non-potable water or other liquids into the distributing pipes of a potable supply of water have been sought in the following ways:

Method 1. Physical separation with a safe air gap as specified in "American Standard Air Gaps in Plumbing Systems" * (approved by American Standards Assn., 1942).

Method 2. Use of a vacuum breaker installed on the discharge side of the last separating control valve and so placed that there is no back-pressure when the normal flow ceases (see specifications approved by American Standards Assn., 1943 †).

Method 3. Use of a back-flow preventer which operates under pressure and which has

a central zone between check valves or equivalent in which zone the pressure would at all times be maintained less than the pressure on the potable side; with a relief opening from the central zone to atmosphere discharging the following minimum quantities without the pressure in the intermediate zone exceeding the pressure on the inlet side for any pressure on the inlet side greater than one-half pound per square inch:

| <i>Size of Device</i>
<i>Inches</i> | <i>Capacity</i>
<i>Gallons per Minute</i> |
|--|--|
| 1 | 6 |
| 2 | 16 |
| 3 | 25 |
| 4 | 35 |
| 6 | 60 |
| Larger | 100 |

Method 4. Use of double check valves of 6 inch size or larger, designed and installed to seat readily and completely and equipped for testing, as approved by the health or water authorities having jurisdiction.

Method 5. Use of single check valves on 2 inch lines and larger, accessible for inspection. For ship-side outlets, such valves should be connected with short nipples and installed on a slant of 10° from the horizontal, so as to permit ready inspection and complete drainage.

Supplementary Protective Steps. In the application of the above methods it may also be desirable in certain special instances as supplementary protective steps to install differential pressure vacuum breakers in locations where vacuum relief is necessary, or safety valves to guard against excessively high pressures such as above 175 lbs. per square inch. For 2 inch or smaller pipe, vacuum breakers should have full-size opening equivalent to the circular area of a diameter equal to the size of the pipe; for pipe over 2 inch in size, an opening equal to a circular area with 2 inch diameter is acceptable. Safety valves should comply with A.S.A. standards.

* ASA (A 40.4—1942).

† ASA (A 40.6—1943).

June, 1945

American Journal of Public Health and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 35

June, 1945

Number 6

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NEW LEADERSHIP IN MENTAL HYGIENE

MENTAL hygiene is a little like the weather. We all talk of it; but—except for a few pioneer state health departments—we don't do anything about it. At last there seems a chance that this important field of public health will be effectively recognized.

HR 2550, presented to the Congress by Representative J. Percy Priest of Tennessee, promises the dawn of a new day. It may prove the most significant piece of health legislation now under active consideration in Washington.

This bill establishes a National Psychiatric Institute in the U. S. Public Health Service. It provides for a central hospital and research institute at Bethesda where qualified individuals may pursue an approved program of investigation, and where a permanent staff will provide stable guidance and leadership in regard to the many psychological problems confronting our government in relation to the general welfare.

Second, this bill provides for grants-in-aid for research under other than U. S. Public Health Service auspices. In many cases, if studies are to be valid, people must be studied where they are and as a part of their social setting. It is important that such research be decentralized and hospitals, universities, clinics, and other facilities helped financially to pursue the leads that their everyday work brings to them.

Third, the bill provides assistance through demonstrations or grants-in-aid to states, counties and other political units, and to non-profit agencies in the field "in establishing and maintaining adequate measures for the prevention, treatment, and control of neuropsychiatric disorders."

Finally, since clinics and hospitals are no better than their staffs, training for nurses, psychiatric social workers, attendants, psychologists, occupational therapists and psychiatrists can be provided under the act. This end can be attained not only by fellowships and scholarships, but also by developing new training facilities necessary for the purpose.

The administrative responsibility for this work is vested in the U. S. Public Health Service, and real authority is given to a special professional Advisory Council which will pass on all projects. The bill provides four and a half millions

for the construction of the new Neuropsychiatric Institute and ten millions a year for research, training, and grants-in-aid.

While grants to states are channeled through state health departments, in many states the real administrative agency may be a department of welfare or mental hygiene, the health department serving primarily as a federal-to-state channel.

The U. S. Public Health Service has shown what can be accomplished in the guidance and stimulation of a national health program in such fields as industrial hygiene, venereal disease, cancer, and recently tuberculosis. The development of such a program in the area of mental health would be a contribution of epoch-making importance. HR 2550 deserves the hearty support of all members of the public health profession.

SHIGELLOSIS AND SALMONELLOSIS

THE danger of disease which may be brought back to the United States by troops returning from highly-infected areas is, rightly and properly, a matter of concern to the civilian health officer. We have discussed in these columns the problem of malaria¹; and Colonel Ward presents a review of the general subject in the present issue of this JOURNAL.² It is encouraging to note the care exercised by the Armed Forces to supervise possibly infected personnel.

We need not be too gravely concerned about most of the more exotic diseases. Filariasis is unlikely to establish itself in the United States; and, in connection with this disease, one of our tasks is to allay unnecessary fears of relatives of soldiers and to emphasize that this is normally a mild disease and that the chances are better than 20 to 1 against an individual who has contracted filariasis developing elephantiasis. The danger of creating endemic foci of schistosomiasis, on the other hand, is a real one and deserves serious attention. Our major problems in this field are, however, malaria and dysentery. These are the two outstanding world plagues of the present day in the Armed Forces; they are likely to be the two outstanding problems of post-war sanitation. In dealing with both these threats, the Army and Navy have been notably successful. Incidence rates for dysentery have been lower and the disease has been milder than in World War I, in spite of the far more insanitary areas in which our operations have been carried on. Yet, despite all that can be done, it is certain that many carriers will be returned from Africa and the Pacific area.

Reports made by state health officers to the U. S. Public Health Service showed a rise in amoebic dysentery from an average of 1,981 cases for 1933-1937 to an average of 3,509 for 1939-1943. Bacillary dysentery was not generally reported prior to 1938. Since that year, the number of cases reported has risen from 20,644 to 30,872 in 1943. It is probable that this increase represents in the main more complete reporting. It may, however, perhaps be significant that the average for 1938-1940 was only 20,614 cases, and the average for 1940-1941, 27,153 cases. Much more important is the evidence presented in regard to certain specific epidemics of intestinal disease. At Newton, Kans., in 1942, there was an epidemic of 3,000 cases of Flexner dysentery in a population of 12,000 due to pollution of the public water supply by cross-connections.³ On a naval vessel, 204 out of 460 enlisted men came down with *Salmonella* infection, causing a loss

of 9,000 man-hours.⁴ Multiplication in a dish prepared from sliced turkey was the probable cause. An apparently fly-borne dysentery epidemic of 1,557 cases in a military organization has been described in this JOURNAL.⁵

It seems clear that the probability of the return of many carriers of *Shigella* and *Salmonella* organisms to their homeland should be provided for by stiffening up our civilian program of public health control. In many areas such an intensified attack is indicated even without any new introduction of infection. Hardy and Watt⁶ report that, in a random survey of 8,643 persons in different parts of the country, the total prevalence of *Shigella* infection (including clinical cases, convalescent carriers, and passive carriers) varied from 0.1 per cent in New York City to 11.0 per cent in New Mexico. In one village, the figure rose to 20.0 per cent. Convalescent carriers were nearly three times as common as clinical cases and passive carriers nearly seven times as common as clinical cases.

We should therefore redouble our campaign against cross-connections and our precautions for the engineering and laboratory control of public water supplies.

We should carry forward vigorously the process of securing sanitary disposal of human excreta. We should use the new insecticides at our disposal for a vigorous attack on *Musca domestica*. This insect may play a major rôle in the causation of sporadic cases of both amebic and bacillary dysentery. With DDT and related substances, the "filth fly" should no longer be the "house fly." In the case of salmonellosis, control of rats may also be of significance.

A third vital factor in the causation of sporadic (and sometimes epidemic) intestinal infection is the carrier in the kitchen. This was well illustrated in an outbreak of 292 cases of Sonne dysentery out of 900 men in an artillery camp.⁷ The enforcement of regulations governing public food handling establishments should be supplemented by an active effort to educate the general public in regard to cleanliness in the preparation of food and the danger of holding foods in which bacterial multiplication may take place without adequate refrigeration.

Finally, we cannot stress too strongly the importance of well equipped laboratory and epidemiological service for the prompt and intensive study of every case of "food poisoning." Great progress has been made in the improvement of methods for the identification of dysentery organisms.^{8,9} They should be applied much more intensively than has been the case in the past; but the techniques are exacting and require skilled bacteriologists for their successful application.

With these procedures—plus the highly effective new methods of treatment by the use of sulfa drugs—we can meet the challenge of dysentery in the United States and Canada.

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HEALTH INSURANCE PLAN FOR GREATER NEW YORK

A LITTLE over a year ago (April 30, 1944) announcement was made of the formation under the laws of the State of New York of a corporation called "Health Insurance Plan of Greater New York," to provide "medical care and attention in any or all of its branches through duly licensed physicians, as well as nursing and other auxiliary services, together with necessary appliances, drugs, medicines and supplies." Many who heard this announcement with satisfaction have been disturbed at the delay in the execution of the plan; but this delay has been necessitated by the importance and the difficulty of finding the right administrative leadership and of working out the details of providing service. The program is likely to be launched within the next few months; and the care taken in perfecting it will be found to be well warranted.

The plan, which has been prepared after extensive conference with the medical profession, with industry, and with labor, will be administered by a Board of 24 Directors, of whom 8 will be physicians. Under this general administrative body, a Medical Control Board of not less than 7, nor more than 15, physicians "will have complete authority in matters relating to medical practice, science and ethics."

Subscribers will be enrolled as groups of employees. Each group must include 50 or more persons, and 75 per cent of the members of each group must enroll. The upper limit of family income will be \$5,000. Dependents (wife or husband and children under 18) will be covered by the plan.

Coverage will include physicians' services in home, doctor's office, and hospital, as well as diagnostic and consulting services, with the exception of chronic functional and nervous disorders, sanatorium and other institutional care, cosmetic surgery or electrolysis, conditions covered by the Workmen's Compensation Law and those resulting from service in the Armed Forces. Hospital bills will be included in the total premium under a contract with the Associated Hospital Service of New York.

The plan will be financed by a payroll deduction amounting to about 2 per cent of the workers' income, supplemented by a similar contribution from the employer. The city government (with some 175,000 employees) has agreed to enter the plan as soon as it is inaugurated, and an effort will be made to secure an equal number of enrollments from private firms and their employees. The 2 per cent of employee contribution is estimated to be about what the average New York wage earner is now paying for inadequate medical care. The program as outlined would provide a total of about \$75 a year per employee, or about \$33 per individual covered (including dependents). This would allow over \$20 for physicians' charges—nearly double the estimated return to the profession from the wage earning group today.

The program as originally outlined visualized two alternative plans of rendering service, an open-panel plan on a fee-for-service basis, and a plan of group practice on a capitation basis. After exhaustive consideration of these two possibilities, outstanding leaders of the county medical societies, as well as industrialists and labor representatives, have become convinced that the open-panel fee-for-service plan would inevitably be doomed to failure; and the present trend is toward the development of voluntary group practice units, affiliated with local hospitals, in out-patient centers each serving about 20,000 people. Such a program would make possible a capitation basis of payment, which is the only practical one;

and, on the other hand, would insure to the physician an assured income from the start and opportunity for professional and economic advancement.

Such a program as that proposed could, for the first time in the United States, provide complete and adequate medical care for a group of wage earners running up into the millions. It has the value of compulsory insurance, without any legal compulsion; and, if national compulsory insurance should be enacted, the plan could readily fit into its framework.

All in all, this New York City project is of far-reaching significance. It represents the first large-scale attempt to work out in detail the local machinery which is essential to the success of any state or federal program of prepaid medical care.

Best Sellers in the Book Service for May

| | |
|---|--------|
| An Appraisal Method for Measuring the Quality of Housing: A Yardstick for Health Officers, Housing Officials and Planners. Part I. Nature and Uses of the Method. American Public Health Association, 1945..... | \$1.00 |
| Mosquito Control. W. B. Herms and H. F. Gray. 2d ed. rev. and enlarged, 1944.. | 3.50 |
| An Introduction to Public Health. Harry S. Mustard, M.D. 2d ed., 1944..... | 3.50 |
| The Control of Communicable Diseases. American Public Health Association. 6th ed., 1945..... | .35 |
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| Nursing in Prevention and Control of Tuberculosis. H. W. Hetherington, M.D., and Fannie Eshleman, R.N. rev. ed., 1945..... | 3.00 |
| Housing for Health. American Public Health Association, 1941..... | 1.00 |

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A DIGEST OF THE HEALTH AND PHYSICAL
EDUCATION RECOMMENDATIONS IN
THE 1944 YEARBOOK OF THE EDU-
CATIONAL POLICIES COMMISSION
EDUCATION FOR ALL AMERICAN
YOUTH

Credit Lines is indebted to Miss Helen M. Starr for the following digest:

The Educational Policies Commission presents a real challenge and stimulation to educators through the interesting and unusual presentation of its 1944 yearbook "Education for *All American Youth*." It is written in the form of a preview of secondary education. The message to school health educators is especially interesting and hopeful since so many of the good points that leaders in this field have worked for and recommended for many years have been accepted and included in this report. The Committee from the American Association for Health, Physical Education, and Recreation selected to do the part of the report on Health and Physical Education included Laurentine Collins, William L. Hughes, Ben W. Miller, Jay B. Nash, A. H. Pritzlaff, C. H. McCloy, Jesse F. Williams, and Pauline B. Williamson.

In the report the fields of Health and Physical Education are discussed by the Committee under six features, three relating to the school health education program and three relating to the physical education program.

The first feature presented deals with the health protection and maintenance phases of the school health program. It is stated as follows:

1. Thorough and complete health examinations lead at once to effective follow-up with students and their parents, to individualized programs of health instruction, and

(when needed) to plans for correction of defects or treatment of disease.

The interesting highlights selected for discussion under this feature vitally concern the many workers in the field of health education. Foremost among them is the problem relating to the frequency and the extent of the health examinations. If there is a choice to be made between frequent, hurried health examinations and complete, thorough examinations at longer intervals, the thorough examination every 3 years is recommended.

In regard to the school's place in securing correction of remediable impairments, certain steps are indicated to secure prompt and effective follow-up where such is indicated. These are: the family physician is to examine the school child; the examining physicians in the community will agree upon a fixed fee which the board of education will pay; a standard examination form will be worked out by a committee from the medical society and the school staff; four copies are to be made of the health examination report and copies will be kept for future reference by the family physician, the parents, the "Common Learnings" teacher who is the high school students' counselor, and the school physician.

The school physician is called the School Medical Adviser and it is his duty to study the health examination reports and select cases where corrective treatment is needed. The nurse or health counselor is responsible for the follow-up phase of the corrective program.

Individual classes for those pupils who need a special type of work, when

indicated by the report of their health examination, are arranged for by the teachers of health and of physical education.

The second feature presented has to do with the healthful environment phase of the school health program and is stated as follows:

2. The health of students has become a chief concern of the entire school, and health promoting activities are found throughout the school program.

To carry out this recommended feature the school must face and accept its responsibility for the health of pupils by providing a healthful school environment and healthful living during the school day. Every member of the school staff has a definite part to contribute to health instruction in this phase of the school health program. Classes such as home economics, biology, chemistry, physical education, vocational education, etc., are planned in terms of health values and health information which can best be secured from each field. In addition, a special class in health instruction is provided to allow for discussion of material not covered in the other courses. Special laboratories and classrooms properly equipped for health instruction are provided. Modern curricular principles are followed in developing sound learning experiences for high school youth.

The physical aspects of the school buildings are planned in terms of those factors which contribute to the best health development of individuals.

A school health coördinator, who is a member of the faculty, works directly with the principal, school medical adviser, and a well planned School Health Council in promoting and carrying out the program of school health. In-service training of teachers and integration of health activities is an important part of her work.

The third feature deals with the instructional phase of the school health

program and is expressed by the committee as follows:

3. The activities of schools in behalf of students' health are extended to homes, to neighborhoods, and to the city as a whole.

The recommendations discussed in this feature of the school health program are of great interest to health educators because the pattern for school and community coördination in health matters is presented. The school is to take an active rôle in community life by "education of pupils and their parents, by coöperating with physicians and community health agencies, and by working with employers to assure safe and healthful working conditions."

Programs of adult education in the health improvement of adolescents through parent-teacher associations are carried on by school personnel. Funds are to be made available for this service. Parents are to become co-planners in this project and are encouraged to take the lead in organizing and conducting such a worth while program. Members of the school staff are interested and informed concerning community health problems, and they take active leadership in promoting public health works and projects by serving on neighborhood committees. Each such committee has as one of its members a person from the school staff. This staff service is considered as an important phase of the instructor's duties and is counted as part of the teaching load. The city board of health and city board of education have a clear understanding of their respective duties regarding the health education of individuals and work in a friendly coöperative manner toward common goals.

The fourth, fifth, and sixth features regarding the physical education program will be mentioned here but not discussed in any detail. For those particularly interested in studying this phase of the school program, many valuable suggestions are given by the committee

in this report. These recommendations are as follows:

4. Each student follows a program of physical conditioning based on the results of his health examination and on information gained by the physical education teacher from other tests and from observation. This program is composed largely of group activities, yet it is made to suit the individual.

5. Beyond his physical conditioning program, each student has an area of free choice of physical activities. In 10th grade, the selection is preceded by several months of "orientation," in which the student is introduced to a wide variety of games, sports, and other physical activities and is given instruction in their basic skills.

6. The schools endeavor to extend physical education outward into the community and onward into the years of adult life.

Each high-school building is open from 8 A.M. to 10 P.M., and its gymnasiums, swimming pools, courts, and playgrounds are available for use by community groups at all times when they are not employed by the regular students. Each high school has thus become a community recreation center. The city recreation commission and the board of education have worked together very closely in recent years; they administer these community activities jointly; and they have a number of joint committees. It appears likely that in time it will be wise to combine the two in a single administration.

It is impossible in a short review to present concretely and in correct detail the wealth of suggestions prepared by this committee. Many of the suggestions given in this report for modern programs of health and physical education are in operation in secondary schools at the present time. However, the adoption of these recommendations as guiding standards for conduct of health and physical education programs will involve real study, coöperation, and understanding on the part of all leaders concerned with securing the best for these fields.

CINCINNATI RECORDS DECLINING DEATH RATE AT OLDER AGES

The Public Health Federation of Cincinnati, Ohio, has reproduced a special bulletin covering reductions in

mortality by age groups 1900 to 1940 by William S. Groom. It is pointed out that it has often been observed that decreased mortality has been largely confined to younger and middle age groups with no significant improvement in death rates of older persons. This situation has prevailed as late as 1930. Since this date, however, there appears to have been a substantial improvement in the mortality of older persons, both in Cincinnati and New York City. This table summarizes the facts.

TABLE 1
City of Cincinnati
1940 Compared with 1930

| Age Group | White Population | Resident |
|-------------|------------------|---------------------------|
| | | Death Rate per 1,000 Pop. |
| 65 to 74 | Increased | Decreased |
| | 21% | 15% |
| 75 and over | Increased | Decreased |
| | 47% | 18% |

WORTH ACQUIRING

Cancer: Notes of Hope. In the April issue of *Fortune Magazine*. A comprehensive review of some of the hopeful aspects of the cancer problem.

The April, 1945, issue of the *Crusader*, a publication of the Wisconsin Anti-Tuberculosis Association, Milwaukee, celebrates 35 years of publication. It reaches back into the files of the past and sets a high standard for anniversary volumes.

PUBLIC HEALTH . . . IS MANY THINGS

The Alabama State Department of Health has recently published a 36 page booklet entitled "Public Health . . . Is Many Things." Brought out under the direction of Dr. Burton F. Austin, Montgomery, State Health Officer, the booklet is aimed to disseminate information concerning the activities of the State Department of Health. Included among the discussions are: Keeping Water Supplies Safe; The Public

Health Nurse Plays an Important Role; Cancer-Control Program Is Aimed at an Ancient Enemy; Free Maternity Care for Mrs. G. I. Joe; Building a Stronger State with Better Food; Rabies Research in Alabama; Public Health Makes Gains in War on Venereal Diseases; Malaria, the Plague of the Centuries, Is Being Mastered; Medical Science Pulls Fangs of Deadly Tubercle Bacillus; Rat Destruction Holds Key to Endemic Typhus Control; Motion Picture Is Enlisted in the Fight on Disease, and Negroes Greatly Complicate State's Health Problems.

Other discussions answer average questions in the lay person's mind concerning the Bureau of Vital Statistics, show the State Board's activities in releasing health educational material through lectures and other sources, demonstrate the service of the library in obtaining health information and discuss service and efforts carried out in protecting food, drink, and communicable and industrial diseases. The well illustrated booklet depicting the activities of the department is concluded with an analysis of the per capita cost of public health and combined range of figures showing the state's health for certain periods.

CONVERSATION PIECE

Contributed by

Raymond S. Patterson, Ph.D.

You are about to file the brochure—in the waste basket. The enthusiast clutches your wrist.

Enthusiast: "Don't do that!"

You: "But it's only another annual report."

Enth: "No, no! This is an educational tool. Look at it again. It tells you and all the Nabobs the things this agency did to make Queensboro a better suburb of Brooklyn! But it accomplishes so much more."

You: "It's still the 25th annual report of the Queensboro Tuberculosis and Health Association."

Enth: "'They Do Not Stand Alone.' Even the title does something to you—makes you

ask who it is that stands with the men and women no longer alone."

You: "Hm! Of course this crowd does quite a job: that would be a cinch to tell about."

Enth: "Try—and learn how hard it is. It's never easy to make ideas stick. This is no dry tabulation of visits made and pamphlets broadcast followed by a mumbo-jumbo of dollar signs. This, is an educational tool. You read it with pleasure, and when you're through, you have found out what was done last year, but—more important—you know what constitutes a sound preventive program."

You: "If we issued a fancy report like that, they'd say I'd gone high-hat."

Enth: "Not the ones who count! If you told the story of your year's work as convincingly, and saw to it that it came to the attention of the Poo-Bahs of your town, you too would have added a sharp instrument to your educational tool-box."

ED.—To all carpenters: the address of the Queensboro Tuberculosis and Health Association is 90-04 161st Street, Jamaica, N. Y.

SOAP SCULPTURE IN THE PSYCHIATRIC WARD

A pamphlet, "The Mental Ward Becomes a Studio," accompanies Procter and Gamble's announcement of its 20th annual competition for prizes in soap sculpture. This is the story of a year's experiment in an Ohio State Mental Hospital in which a sculptor held tri-weekly classes in soap sculpture for inmates. Artistically illustrated with figures carved by the members of the class, it points to some of the therapeutic values for the mental patient that may inhere in soap sculpture and soap modelling, and suggests that it might well be a rewarding field for further experiment, with psychiatric evaluation of results.

CANCER TEACHING PROJECT IN NASSAU COUNTY, N. Y.

The Nassau County Cancer Committee, Mineola, N. Y., has recently revised its study outline "Cancer—A

Challenge To Youth," which was prepared for use in health classes in secondary schools. The revision takes into account the experience which has been based on the former teaching unit published by this committee in 1942.

It is not surprising that the Nassau County group has had requests far and wide for this brochure. The text is excellent, the typography first rate. It should be seen by all those with responsibility for teaching in the field of cancer control.

CALIFORNIA WARNS AGAINST RHEUMATIC FEVER IN SPANISH

Under the title of "Rheumatic Fever, the Enemy of Children" (translated), the California Tuberculosis Association has prepared a leaflet for the Mexican population of the state. With sketches of a little boy with a failing appetite, nose bleed, pale, unhappy, sneezing, it suggests a doctor but no medicine man; sleep and proper food. Done in red, white, and black and in simple language it has a definite appeal.

OH YES! THERE ARE JOADS IN NEW YORK!

A bouquet to the Consumer's League of New York on several counts for its recent pamphlet "The Joads in New York." Its type, paper, and illustrations are excellent examples of the art of printing, and its style and subject matter an excellent example of public education about a problem little understood by the citizens concerned.

New Yorkers, says the study, were interested in the "Okies" and "Arkies" who followed the harvest in California in the printed pages, and on the screen of "Grapes of Wrath," but neither know nor care about the "pickers"

living in identical conditions in farm labor camps of New York. The problems of sanitation, communicable disease, child health, child care, recreation, and community attitudes are all presented graphically but with restraint. It won't be the fault of the Consumer's League if the New York reader doesn't ask some searching questions of his legislators, his health officer, his labor department, his community agencies, and perhaps even of himself after he has read about the eastern branch of the Joad family.

MILLVILLE HELPS ITSELF

Dr. Vlado Getting, Massachusetts State Commissioner of Health, Boston, has called the attention of the *Journal* to an unusual document (House No. 1600, Commonwealth of Massachusetts, April 19, 1944) including a report of demonstration services conducted in the town of Millville, Mass. Fredrika Moore, M.D., consultant in school hygiene of the State Department of Public Health, summarizes the health of Millville's children and recounts the events of more than nine years, during which special efforts were made to provide services to this group of children in a community where a large factory had closed. The correction of defects, good nutrition, mental hygiene, health education, communicable disease control, and other features are interestingly reported. Through a combination of official and voluntary agencies a rather unusual result seems to have been achieved.

Anne Whitney contributes a section of the report on health instruction. Miss Whitney will be remembered as former director of educational service in the American Child Health Association.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

All books reviewed in these columns may be purchased through the Book Service.

Handbook. Statistical Reference Data by District and Health Area. 1931-1940—*Compiled by Marjorie T. Bellows, Godias J. Drolet and Harry Goode. New York: Neighborhood Health Development, 1944. 200 pp. Price, \$1.25.*

If you know New York at all, you probably could guess that the percentage of owner-occupied homes is smallest in Manhattan and largest in Staten Island—and pretty small even there. But what borough would you guess has the highest percentage of persons who have had four years of college? You think of Harlem and the lower East Side and conclude it cannot be Manhattan. But you are wrong. It is Manhattan. But that does not tell much about education status in that Borough. You have to know that the range is from 2.1 per cent in Central Harlem to 13.2 per cent in the Kips Bay-Yorkville District.

Well, the *Handbook* (latest issue, covering the years 1930-1940) gives those and a mine of other basic facts. What has that to do with health? A great deal, if you are trying to teach all of your people the principles of health. But it tells a lot more—such as population trends, percentages of persons in various age groups, mortality rates, and trends by diseases standardized for age and such morbidity facts as our health departments require (all too little for intelligent guidance). Most important of all, the analysis breaks down the information for the 25,000 health areas of the city and the neighborhoods that make up these areas.

This valuable document will not be a best seller, but it is of real value just the same. To New York health workers, it gives an indispensable guide to health programming. To the rest of us, it gives a clue to the kind of facts we must work with if we want to go about the task of community health improvement intelligently and to know whether or not we are getting results. You simply cannot diagnose your health problems accurately and apply the correct remedies unless you have basic data such as these.

The *Handbook* was prepared by the New York Health Department and Neighborhood Health Development, Inc. It is a good job.

BLEECKER MARQUETTE

Metodos Tipo Para El Examen De Los Productos De Lecheria. Summario de la Octava edicion norteamericana, 1945, pp. 52.

Spanish Summary of the 8th edition (1941) of Standard Methods for the Examination of Dairy Products. A.P.H.A.—*New York: A.P.H.A., 1945. 52 pp. Price, 10¢ in U. S., free in Latin America.*

This is a summary of directions of the various procedures that are included in the latest edition of Standard Methods for Dairy Products of the American Public Health Association. The summary has been prepared in a form that should make the directions clear for technicians in public health laboratories in Spanish speaking countries, many of whom are unable to read the more-complete English text. The transla-

tion has been carried out by Angel de la Garzo Brito of Mexico, Oscar Costa Mandry of Puerto Rico, and Raoul F. Cowley of Cuba, all of whom are familiar with the technics described.

This Spanish abstract is divided into four sections of the complete (XVI + 288 pp.) English report. Part 1. Microbiological Methods for the Examination of Milk, Cream and Butter. Part 2. Methods for the Examination of Frozen Desserts and Ingredients of Frozen Desserts. Part 3. Bioassay of Vitamin D Milk. Part 4. Chemical Methods. The Appendix includes Methods for Determination of Phosphatase.

This pamphlet is being distributed widely in Spanish speaking countries through the courtesy of Science Service, the United States Department of State, and the Coördinator of Inter-American Affairs.

ROBERT S. BREED

The Handbook of Industrial Psychology—By May Smith. New York: Philosophic Library, 1944. 304 pp. Price, \$5.00.

It is not alone Dr. Smith's more than thirty years in the industrial field, which entitles this book to careful attention; it is her ability to boil down within its comparatively small scope the entire panorama of problems besetting, as she calls it in her modest preface "those who are in some way responsible for others, or who have to get on with others." There's practically no simpler way of stating personnel or industrial medical problems.

The author has been true to her definitive purpose. There is not a line in her book, obviously the distillation of long research, which does not hew to the line of the common industrial denominator, and which does not live up to its title "Handbook."

To those who wish to pursue the psychological development and placement of the worker in the job, *The Handbook of Industrial Psychology*

offers an admirable coverage of the subject, particularly for those whose interest in the subject is not solely academic.

With the huge post-war employment problem facing American industry, there is no executive, personnel official, or in fact any individual whose job requires executive understanding in human and industrial relationships, who can afford to neglect any signposts offered him. Dr. Smith's readable and well rounded book may well be considered required reading for the man who wants to do more than issue orders.

LYDIA G. GIBERSON

Soldier to Civilian—Problems of Readjustment—By George K. Pratt, M.D. New York: McGraw-Hill, 1944. 233 pp. Price, \$2.50.

Some of the problems facing the returning serviceman, and those to whom he returns, are discussed by Dr. Pratt in his book *Soldier to Civilian*. The author places primary emphasis on a realistic recognition of the fact that a few neat packages of rules for dealing with the returned serviceman cannot be presented. There is no one set of instructions; no two persons react precisely the same to similar situations, and what is good advice for one person may turn out to be the worst possible advice for another. Each veteran must be approached and understood as an individual.

In order, however, to achieve an effective understanding, certain forces which have shaped the veteran must be evaluated. To this end the author describes the equipment the typical soldier takes with him as he enters service, the way he may be changed by military training and experience, and finally the problems of readjustment that may confront him. Special consideration is given to the veteran who is discharged with a psychiatric disability. The point of view of the presentation throughout

is wholesome and sympathetic. There is abundant, carefully selected case material, which in itself will be helpful and suggestive to the veterans and families of veterans for whom the book is intended.

On the other hand, the average lay reader may not follow with full understanding some of the more technical psychiatric explanations which are given.

Certainly, however, the social worker, the teacher, and the professional person who will come in contact with veterans will want to read this book.

The appendix contains a 33 page report on Community Services for Veterans—prepared by the National Committee on Service to Veterans—which should be useful to persons interested in community planning.

LOUIS LONG

The Marihuana Problem in the City of New York—By The Mayor's Committee on Marihuana. Lancaster, Pa.: Cattell Press, 1944. 220 pp. Price, \$2.50.

A fourfold original investigation by a well qualified committee is reported here with admirable fidelity and scientific integrity.

Mayor La Guardia sought to foresee and prevent hazards to the health, safety, and welfare of the citizens of New York from the use of marihuana. The Academy of Medicine encouraged the inquiry and suggested the members of the committee. Dr. George B. Wallace, the Chairman, and his eight colleagues, with the benefit of four specialist advisers, and the coöperation of four officers of the city government, carried out original clinical and laboratory studies in the sociological, medical, psychological and pharmacological aspects of the drug as used by habitués.

As the project was well conceived and adequately supported by three foundations, so the record of observations,

the discussion of the findings, and the summary of conclusions are in the best manner, concise, complete and objective, free from emotional bias, traditional attitudes, or journalistic exploitation.

Without studying the content of this little volume, no one will venture to speak or write with authority on the prevalence or immediate and related personal and social results of smoking marihuana cigarettes. That the practice of smoking marihuana does not lead to addiction in the medical sense of the word, nor to addiction to other narcotic drugs, nor to major crimes, are significant observations.

So far as New York City is concerned, it is recorded that marihuana smoking is not widespread among school children, is not associated with juvenile delinquency, and publicity concerning catastrophic effects of the habit is unfounded.

HAVEN EMERSON

Marriage and Family Relationships—By Robert G. Foster. New York: Macmillan, 1944. 314 pp. Price, \$2.50.

Some marriages, some families, are successful and happy. Some are not. In either case, why?

In guiding his readers toward what answers may be found to these questions, Dr. Foster draws on a lifetime of experience as teacher and counselor. His long association with Detroit's progressive Merrill-Palmer School has given him a splendid proving ground for testing theories and putting them into sound practice. As a parent he knows and likes young people. As a writer he is consistently straightforward and modest, settling no problems for all time and frequently leaving the door of discussion wide open. His work should last long and be unusually helpful, not only to the college-age groups for whom it was especially written, but for readers

of any age, including those who seek to counsel others.

This is a "guide-book" rather than a textbook, though it is organized in text-book style. There are four parts. Part I, *Personal Development in Relation to Marriage*, tries for a better understanding of self through study of human beings in general. Part II, *The Immediate Prelude to Marriage*, deals with dating and courtship, mate selection, and marriage plans. Part III, *Evolving a Satisfactory Family Life*, occupies eight of the volume's nineteen chapters, ranging through the crucial "first year" of marriage, in-law relationships, financial management, and the beginnings of real family life with the coming of children. Part IV, *The Family and Democratic Society*, comes back to humanity as a whole, now in wartime, and afterward. Illustrations and plenty of case stories enliven the pages. A 40 page Appendix includes References for Supplementary Reading, Questions and Exercises to Accompany Study of Text, with a special group of questions based on interests of college freshmen, and a Premarital Contrast Interview Blank designed for counselor aid. A good index completes a good book.

Chapter IX, Part III, *Sex as a Factor in Family Life*, discusses this important subject with clarity and directness, without under- or over-emphasis, and suggests some good references for additional reading if desired.

JEAN B. PINNEY

Essays in the History of Medicine Presented to Professor Arturo Castiglioni on the Occasion of His Seventieth Birthday, April 10, 1944. Baltimore: Johns Hopkins Press, 1944. 358 pp. Price, \$3.50.

The custom of presenting a "Festschrift" to a distinguished teacher or scholar has prompted many delightful volumes. Spurred on because of their

affection for the one to be honored, many who might otherwise not do so are led to write often quite important essays. This volume dedicated to Professor Castiglioni is no exception. The man himself has had many contacts with medicine and public health, the arts, science, and once even edited a daily newspaper. His comprehensive history of medicine, written in his native Italian tongue and translated in four others (including English, 1941), is known to many historians of medicine. One hundred and sixty-three titles are listed in his bibliography. In his homeland he was head of the Sanitary Service of Austrian Lloyd, Lloyd Triestino and Italian Lines for thirty-nine years, and member of the High Council for Public Health in Rome from 1922 to 1929, in addition to his professorial posts in the history of medicine and science.

His American friends marveled that late in life he could begin again in a new country, in a new language. For having "remained a humanist in the midst of barbarism" he left Italy, and in that unique medical library at Yale University has again taught, lectured and written, and become a part of the American medical and historical world. The dinner, at which this volume was presented, was an occasion not often duplicated, even for a beloved American teacher.

The volume itself has twenty-five contributors who have written on a wide variety of historical subjects. Public health workers will probably be most interested in those on Ozanam, the epidemiologist, on descriptions of what was probably diphtheria, dated 1749 and 1750, on a 16th century epidemiological monograph, and a description of yellow fever from 1800 to 1804 in Peru. George Sarton has presented an excellent picture of Beccari and his contribution on the establishment of criminal justice on a national basis, a subject of no less interest today when new prob-

lems of international justice face us.

The general reader will be delighted with the introduction by Dr. Sigerist. It is written in a spirit and with an understanding that one wishes might influence all those who have to sit at international conferences in the coming years.

LEONA BAUMGARTNER

Studies on Alcohol: Lay Supplements Nos. 10, 11, and 12. The Drinker and the Drunkard, 16 pp. How Alcohol Affects Psychological Behavior, 15 pp. The Rehabilitation of Inebriates, 14 pp. *New Haven, Conn.: Quarterly Journal of Studies on Alcohol*, 1944. Price \$1.10 each.

The Lay Supplements published by the *Quarterly Journal of Studies on Alcohol* constitute a valuable contribution to general enlightenment on a very common but very complex problem. At the same time they demonstrate the feasibility of bridging the gap between the scientific investigator and the lay public. In this highly controversial field it is especially important to have scientifically sound literature that is simple enough for ordinary people to read and yet not so simple as to deceive readers into the assurance that they now know all the answers.

No. 10, *The Drinker and the Drunkard*, considers the motives of those who do not drink at all and the motives of different kinds of drinkers. It is helpful to recognize that there are several kinds of abstainers as well as several kinds of drunkards. This is a good introduction to the task of grasping the fallacy of treating symptoms without attending to the inner troubles or disease, as it clarifies also the fallacy of seeking a single remedy for several distinct disorders. The pamphlet considers also the idea of preventing disease instead of waiting for it to break out.

No. 11, *How Alcohol Affects Psychological Behavior*, appears to be a more "theoretical" approach because it dis-

cusses experimental material on the effects of alcohol in moderate amounts on perception and judgment; but it does make clear the distinction between effects upon performance and effects upon the feelings, or between effects on the accuracy of marksmanship and effects on the feeling of assurance. And it avoids dogmatic either-or answers.

No. 12, *The Rehabilitation of Inebriates*, is in the form of a conversation on various practical experiences and procedures in this field.

BENJAMIN C. GRUENBERG

American Medical Practice in the Perspectives of a Century—By *Bernhard J. Stern, Ph.D.* *New York: Commonwealth Fund*, 1945. 156 pp. Price, \$1.50.

Everyone knows by now that great changes have occurred in the technology of medicine as well as in the structure of the society in which we live, and it is quite obvious that a new medical science called upon to serve a new type of society requires certain adjustments in the provision of medical care. The discussion of these problems has been going on ever since the Committee on the Costs of Medical Care began its work in 1928. This discussion was anything but dispassionate because it was frequently carried on by pressure groups or vested interests. While nobody will deny that changes have occurred, few people, and particularly few medical men, have a clear notion of the actual nature of these social and economic changes, and this is one reason why the discussion is often so confused and beside the point.

It is extremely gratifying that so influential a body as the New York Academy of Medicine saw fit to establish in the winter of 1942 a Committee on Medicine and the Changing Order, consisting of physicians, representatives of allied professions, and of labor, industry, law, social work, and the clergy.

Its task was,

... to review the nature, quality, and direction of the economic and social changes that are taking place now and that are to be anticipated in the immediate future; to define in particular how these changes are likely to affect medicine in its various segments; to determine how the best elements in the science and art of medicine and in its service to the public may be preserved, embodied, and extended in whatever new social patterns may ultimately appear.

Beginning in February 1943, the Committee held weekly meetings at which it listened patiently to presentations by experts from such varied fields as economics, politics, industry, labor, medicine in the broadest sense of the word, dentistry, the hospitals, nursing, and social work. The lectures were followed by discussions which were conducted on a very high level, as I can testify from experience. Ultimately the committee will issue a report representing the conclusions drawn from its deliberations and studies. In the meantime it is publishing a series of short monographs devoted to the major medical problems of today, the first volume of which has just come out.

Professor Stern is a sociologist who for many years has made a special study of the social implications of medicine and has written a number of valuable monographs on the subject. His present book is neither for nor against anything, but is a dispassionate presentation of social and economic changes in American life, the expanding horizons of medicine, the specialist and the general practitioner, the supply and distribution of physicians, the patient load in medical practice, the income of physicians, and the distribution of medical services.

The book does not contain anything that is new to specialists, but specialists in this field can be counted on the fingers of one hand, and the book aims at a much larger audience of physicians and statesmen of medicine. It is packed

full of facts and figures which are not always easy to find, since they are scattered through publications. It is thus a most welcome summary and it is to be hoped that it will be widely read. Whoever reads it is free to draw his own conclusions from the facts presented. But the facts are such that the intelligent reader will learn from them what changes have actually occurred and what the present trends are in society and medicine.

The great advantage of this book is that it is informative, accurate, and short, so that even busy practitioners will read it and will ponder over it. If the other volumes of the series are as good as this first one, we may expect a collection of books that will exert a great influence in moulding public opinion and in educating the physicians, a group that needs education in social matters perhaps more than any other one. And if the Committee on Medicine and the Changing Order of the New York Academy should achieve nothing else but the publication of this series, this alone would have justified its existence.

HENRY E. SIGERIST

Family Susceptibility to Tuberculosis—By Ruth R. Puffer, Dr.P.H. *Harvard University Monograph in Medicine and Public Health Number 5.* Cambridge: Harvard University Press, 1944. 106 pp. Price, \$2.00.

This small volume revives the ancient question of the relative importance of the soil and the seed in tuberculosis. The original data presented are from the Williamson County (Tenn.) study with which the author is associated.

The general argument is that persons related by blood to "index cases," siblings, parents, and children, have high mortality rates from tuberculosis whether or not they are known to have been subjected to familial exposure. Although it is admitted that the high rates may be attributable to unknown

exposure in infancy or early childhood, the author leans in the direction of an inherited susceptibility.

As supporting evidence, selected articles from the literature are cited, including reports relating to possible familial susceptibility to leprosy, anterior poliomyelitis, and rheumatic fever. Recent studies on tuberculosis

in monozygotic and dizygotic twins are also discussed.

To the health officer the practical importance of this thesis is that it directs attention to a group often overlooked, namely, the siblings of persons suffering from tuberculosis, who should be examined, whether or not they are residing in the same household. J. A. DOULL

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed in future issues.

AN APPRAISAL METHOD FOR MEASURING THE QUALITY OF HOUSING: A Yardstick for Health Officers, Housing Officials and Planners. Part I. Nature and Uses of the Method. By The Committee on the Hygiene of Housing, American Public Health Association. New York: American Public Health Association, 1945. 71 pp. Price, \$1.00.

THE ATTENDANT'S GUIDE. By Edith M. Stern in collaboration with Mary E. Corcoran, R.N. New York: The Commonwealth Fund, 1945. 104 pp. Price, \$.50.

BRONCHIAL ASTHMA. By Leon Unger, M.D. Springfield: Thomas, 1945. 730 pp., 126 illus. Price, \$9.00.

CLINICAL PASTORAL TRAINING. Edited by Seward Hiltner. New York: Commission on Religion and Health, Federal Council of the Churches of Christ in America, 1945. 176 pp. Price, \$1.00.

DATA FOR STATE-WIDE PLANNING OF VETERANS' EDUCATION. By Ernest V. Hollis. Washington, D. C.: Gov't Printing Office, 1945. Bull. 1945, No. 4. 69 pp.

DIGEST OF PAPERS PRESENTED AT THE NATIONAL CONFERENCE ON POSTWAR VENEREAL DISEASE CONTROL. Under the auspices of the United States Public Health Service, Venereal Disease Division, St. Louis, Missouri, November 9-11, 1944. New York: American Social Hygiene Association, 1945. Pub. No. A-584. 43 pp. Price, \$.10.

HOSPITAL CARE OF THE INDIGENT AND MEDICAL INDIGENT IN NEW JERSEY. A Review of the Policies and Legal Resources for Adequate Hospital Care. Prepared by the Welfare Committee, New Jersey Hospital Association in cooperation with Division of

Statistics and Research, New Jersey State Department of Institutions and Agencies. Trenton: New Jersey State Department of Institutions and Agencies, 1945. 46 pp. Free from publisher.

HEATING, VENTILATING, AIR CONDITIONING GUIDE, 1945. 23rd ed. New York: American Society of Heating and Ventilating Engineers, 1945. 1216 pp., illus. Price, \$5.00.

A LABORATORY MANUAL OF PHYSIOLOGICAL CHEMISTRY. By D. Wright Wilson. 5th ed. Baltimore: Williams & Wilkins, 1944. 269 pp. Price, \$2.50.

THE MOSQUITOES OF NEW JERSEY AND THEIR CONTROL. By Thomas J. Headlee. New Brunswick: Rutgers University Press, 1945. 326 pp. Price, \$4.00.

THE NEW YORK HOSPITAL. A HISTORY OF THE PSYCHIATRIC SERVICE, 1771-1936. By William Logie Russell. New York: Columbia University Press, 1945. 556 pp. Price, \$7.50.

OCCUPATIONAL ACCIDENT PREVENTION. By Harry H. Judson and James M. Brown. New York: Wiley, 1944. 234 pp. Price, \$2.75.

PENICILLIN THERAPY. Including Tyrothricin and Other Antibiotic Therapy. By John A. Kolmer, M.D. New York: Appleton-Century, 1945. 302 pp. Price, \$5.00.

SCIENCE IN PROGRESS. Edited by George A. Baitzell. 4th series. New Haven: Yale University Press, 1945. 331 pp., illus. Price, \$3.00.

A STUDY OF THE SOCIAL EFFECTS OF PUBLIC HOUSING IN NEWARK, N. J. Conducted by Dr. Jay Rumney and Sara Shuman, M.A. Newark: Housing Authority of the City of Newark, 1944. 95 pp. Limited supply free from publisher.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

To Pill or Not to Pill—Vitamin supplements were given to a group of aircraft workers and placebos to a comparable control group. At the end of a year absenteeism and terminations were significantly lower in the vitamin group than in the control group, and personnel ratings were higher. That a long period of therapy is needed before the differences are measurable is one conclusion of this study.

BORSOOK, H. Nutritional Status of Aircraft Workers in Southern California. *Milbank Quart.* 23, 2:113 (Apr.), 1945.

From British Experience—With modern, highly potent toxoid 97 infants out of 100 can be rendered Schick-negative with one injection.

BOUSFIELD, G., and KING-BROWN, W. W. High-Potency Diphtheria A.P.T. Is There Hope of Single-Injection Prophylaxis? *M. Officer.* 78, 9:69 (Mar. 3), 1945.

It's the Crowd, Not the Crowding—Miscellaneous item for you to tuck away: incidence of respiratory illness is related to number of men in a room, not to amount of floor space or cubic space per man. Under military conditions respiratory diseases can be cut by partitioning barracks.

BRESE, B. B., *et al.* Influence of Crowding on Respiratory Illness in a Large Naval Training Station. *War Med.* 7, 3:143 (Mar.), 1945.

Somber Note—In 1940, Halifax suffered a formidable attack of virulent diphtheria. Follow-up studies have been made in recent years to determine whether or not the gravis form persisted among the continuing cases. It did.

BYNOE, E. T., and HELMER, D. E. Bacteriological Observations on Diphtheria in

Halifax. *Canad. Pub. Health J.* 36, 4:135 (Apr.), 1945.

"Old Stagers"—If you need it, here is further proof that children of long-lived fathers and mothers are apt to live longer than those whose parents died young. Byron wrote, 125 years ago, "Nobody lives long without having one parent, at least, an old stager."

PREAS, S. Length of Life of Parents and Offspring in a Rural Community. *Milbank Quart.* 23, 2:180 (Apr.), 1945.

New!—Industrial and commercial cafeterias, college commons, and the like, play a big part in our country's nutrition. In Massachusetts there is a unique weekly menu and guidance service. How the plan got started and what it does are explained here in convincing detail.

DODGE, Q. O. A Weekly Menu and Nutrition Service to Industry. *J. Am. Dietet. A.* 21, 4:223 (Apr.), 1945.

"It Ain't the Heat, It's the Humidity"—Further evidence, if any is needed, that the wet-bulb temperatures determine ability to work in hot climates. Below 91° F. men work easily, above 94° hard work leads to disability. There is more to the paper than this nubbin suggests.

EICHNA, L. W., *et al.* The Upper Limits of Environmental Heat and Humidity Tolerated by Acclimatized Men Working in Hot Environments. *J. Indust. Hyg. & Toxicol.* 27, 3:39 (Mar.), 1945.

First State Health Officer—If history bores you, or you are one of those against whom Elizabeth Browning inveighed — "And calculating profits . . . So much help by so much reading"

—then pass up this delightful account of Henry I. Bowditch's classic treatise and his early professional career.

FITZ, R. The Young Stethoscopist. New England J. Med. 232, 13:365 (Mar. 29), 1945.

Diagnosing Rheumatic Fever—We know more about rheumatic fever now, and we know there is more of it than was suspected. Diagnostic standards are proposed as a contribution to the national preventive program.

GUY, P. F. Diagnostic Standards for Rheumatic Fever. Northwest Med. 44, 3:90 (Mar.), 1945.

Polio Epidemiological Note—In a great variety of situations, human stools, insects, fecal specimens from rodents and farm animals, and samples of milk and water were tested for polio virus. Mostly the virus was recovered only from contacts. It was not recovered from the other sources, except that in one pooled specimen from rats caught in a city dump, a paralysis producing agent was found.

PEARSON, H. E., et al. Studies of the Distribution of Poliomyelitis Virus. Am. J. Hyg. 41, 2:164 (Mar.), 1945.

Customer's Complaints —Two Eastern city health department sanitary inspection services were studied to delineate complaint work in order to suggest changes in administrative practice. Further publications are promised.

POND, M. A. Nuisance Complaints and Municipal Health Department Practice. Pub. Health Rep. 60, 14:381 (Apr. 6), 1945.

Sixteen Million Hospital Admissions—Objective: a chest x-ray for every one admitted to hospitals or clinics. This objective is a practicable one; it deserves your support.

SCATCHARD, G. N., and DUSZYNSKI, D. O. Miniature Chest X-Ray Films in General Hospitals. J.A.M.A. 127, 13:746 (Mar. 31),

1945 (and) GOULD, D. M. Nontuberculous Lesions Found in Mass X-Ray Surveys. J.A.M.A. 127, 13:753 (Mar. 31), 1945.

M'f'g. vs. V. D.—Grass-roots venereal case finding in the industrial field is the theme of this symposium on labor participation in the control of gonorrhea and syphilis. The questions and answers at the end are not to be missed.

SHOSTAC, P. Moving Along Together. J. Soc. Hyg. 31, 2:77 (Feb.), 1945.

Insanitary Statistics—Inspections of interior water piping in twenty-six communities revealed 644 potentially dangerous installations — cross-connections, submerged tank inlets, direct connections for sewers.

WIGGIN, D. C. Connecticut Plumbing Survey Showed Many Health Hazards. Water Works Eng. 98, 6:306 (Mar.), 1945.

There's a Safety Factor of 30%—Recommended Dietary Allowances were intended as a guide for dietary planning in civilian and military groups. The tables have been put to uses for which they were never intended and much of the criticism of the standards is referable to this misuse, says the Board's past president. They are not meant to be used as measures of nutritional inadequacies.

WILDER, R. M. Misinterpretation and Misuse of the Recommended Dietary Allowances. Science. 101, 2621:285 (Mar. 23), 1945.

War's Assets and Liabilities—As the airplane has put an end to sanitary isolationism (pronounced "iss-o-lation-ism" except by those who say "eye-talian") science must put within man's reach new levels of global health, says this writer.

WINSLOW, C.-E. A. Public Health in the Post War World. Survey Graphic. 34, 4:119 (Apr.), 1945.

ASSOCIATION NEWS

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Bernard E. Bolotoff, M.D., 305 S. Main St., Rockford, Ill., Health Officer, Rockford Township
John J. Day, M.D., C.M., 4333 Sherbrooke St., Westmount, P. Q., Canada, Medical Health Officer, City of Westmount
Roger E. Heering, M.D., M.P.H., Ohio Dept. of Health, Columbus 15, Ohio, Director of Health
Walter R. Hewitt, M.D., 7649 Delmar, University City 5, Mo., Health Commissioner
Clarence R. Kroeger, M.D., P. O. Box 1212, Tucson, Ariz., Health Officer-in-training, City-County Health Dept.
A. Alexander Neuwirth, M.D., Iron Inn, Iron River, Mich., Health Officer, Iron-Ontonagon Health District
Howard D. Newman, M.D., Old Court House, Clovis, N. M., District Health Officer
Bruno Roy, M.D., D.P.H., Lake Megantic, Frontenac County, Province of Quebec, Canada, Medical Officer, Health Unit

Laboratory Section

Mercedes Chavez y Arango, M.D., Univ. of North Carolina, School of Public Health, Chapel Hill, N. C., Instructora de la Escuela Sanitaria, Instituto Finlay (Havana, Cuba)
Elmer L. Ballard, U.S.N., Naval Mine Depot, Yorktown, Va., Chief Pharmacist
Antoine Berthiaume, 4019 St. Antoine, Montreal, Que., Canada, Laboratory Analyst, City Health Dept.
Louis H. Burrows, Ph.M.2/c, 107 Washington St., New York, N. Y., Senior Technician, Merchant Marine Medical Center, U. S. Maritime Center
Shih Lu Chang, M.D., Dr.P.H., Pierce Hall, Harvard Univ., Room 114, Cambridge 38, Mass., Faculty Instructor in Sanitary Biology, Harvard Graduate School of Engineering and Public Health
Mary C. Clark, 2021 N. Delaware, Indianapolis 2, Ind., Research Asst., Dept. of Bacteriology, Indiana Univ. School of Medicine
Gilbert Dalldorf, M.D., State Laboratory, New Scotland Ave., Albany, N. Y., Director,

Division of Laboratories and Research, State Dept. of Health
Margaret M. Davis, 1401 A. Woodlawn, Austin 21, Tex., Director, Division of Serology, State Dept. of Health
Florice E. W. Dunham, 25 S. Serven St., Pearl River, N. Y., Research Technician, Lederle Laboratories
Ivan G. Frazier, 2520 W. Jefferson, Boise, Idaho, Junior Bacteriologist, State Dept. of Public Health
George L. Gilbert, Laboratory Technician, Station Hospital, U. S. Army
Sidney E. Gilchrist, 105 S. State St., Salt Lake City, Utah, City Bacteriologist, City Health Dept.
Robert H. Hilton, Pharmacist, U.S.N., 1 Wagner Ave., Schenectady 4, N. Y.
Capt. Alvin Hollander, Bacteriologist, General Hospital, U. S. Army
Robert H. Rainey, Laboratory Technician, Station Hospital, U. S. Army

Vital Statistics Section

Helen D. George, 721 Gorsuch Ave., Baltimore 18, Md., Statistician I, Bureau of Vital Statistics, State Dept. of Health
George E. Greenwood, State Dept. of Health, Bureau of Vital Statistics, Harrisburg, Pa., Acting Director
J. David Larson, 510 W. 6th St., Room 1002, Los Angeles 14, Calif., State Director, National Foundation for Infantile Paralysis
Brenda C. Phillips, Provincial Board of Health, Parliament Bldgs., Victoria, B. C., Canada, Statistician, Division of Vital Statistics
Ruth F. Salt, Memorial Hospital, York at 68th St., New York 21, N. Y., Director, Statistical Dept.
Estelle Spann, 435 W. Lafayette, Marianna, Fla., Record Consultant, State Board of Health

Engineering Section

Carlos Ayala, M.S., Banco Industrial de Venezuela, Caracas, Venezuela, S. A., Sanitary Engineering Graduate, Massachusetts Institute of Technology
William M. Branch, 1738 Homestead Ave., N.E., Atlanta, Ga., Public Health Engineer, State Dept. of Public Health

Aaron B. Castleberry, P. O. Box 1051, Jacksonville 1, Fla., Director of Sanitation, Duval County Health Unit
 Lt. Comdr. Kenneth M. Clark, U.S.N.R., 631 Park Square Bldg., Boston 16, Mass., Sanitary Engineering Officer
 C. Austin Habermehl, 9300 W. Jefferson, Detroit 17, Mich., Supervising Sanitary Chemist, Detroit Sewage Treatment Plant
 J. Durward Hanbury, Portsmouth City Health Dept., P. O. Box 576, Portsmouth, Va., Sanitarian
 Ole J. Hendrickson, 972 Bush St., Apt. 2, San Francisco 9, Calif., Rodent Control Officer, State Dept. of Public Health
 Harvey P. Jones, 606 Toledo Trust Bldg., Toledo, Ohio, Consulting Sanitary Engineer, Jones and Henry
 Leo Louis, Jr., 1098 W. Michigan St., Indianapolis 7, Ind., Senior Sanitary Engineer, State Board of Health
 Herman R. Mendell, Newton County Health Unit, Neosho, Miss., Junior Asst. Engineer (Area Supervisor), Malaria Control in War Areas, U.S. Public Health Service
 Graham G. Oldham, 121 S. 10th St., Independence, Kan., Sanitary Engineer, Montgomery County Health Dept.
 Capt. Norman M. Winch, Sn.C., Lovell General Hospital, Fort Devens, Mass., Sanitary Engineer

Industrial Hygiene Section

M/Sgt. Julius Morris, Co. C, 94th Battalion, 3860SCM, Camp Claiborne, La., Safety Engineer and Industrial Hygienist, Engineer Pipe Line School
 Samuel T. Nicholson, Jr., M.D., The Hill School Infirmary, Pottstown, Pa., Medical Director; Plant Physician
 Arnel R. Sarver, Ch.Pharm., U.S.N., Navy Yard Dispensary, Boston 29, Mass., Sanitation Officer
 M. Evelyn Sutton, 511 W. 167th St., New York 32, N. Y., Industrial Nurse, U. S. Radium Corp.
 Alfred T. Williams, Ch.Pharm., U.S.N., 113 Cheyenne Trail, Portsmouth Estates, Portsmouth, Va., Sanitarian
 Joan Y. Ziano, R.N., 1800 W. Fillmore, Chicago, Ill., Industrial Nursing Consultant, State Dept. of Public Health

Food and Nutrition Section

Ethelyn O. Graves, M.S., 445 Narib 3 E., Logan, Utah, Dean of Home Economics, Utah Agricultural College
 Edward W. Howard, 1103 K St., S.E., Washington 3, D. C., Director of Food and

Sanitation Standards, Pentagon Post Restaurants
 Marjorie M. Morrison, M.S., 2519 Oak St., Jacksonville, Fla., Associate Nutrition Consultant, State Board of Health
 Charles F. Pentler, Ph.D., 160 Martin Ave., Palo Alto, Calif., Research Chemist, Lyons-Magnus Inc. (Fruit Products)
 Beatrice Spiker, 255 Whitney Ave., New Haven 11, Conn., Nutritionist, Conn. Dairy and Food Council
 Vera W. Walker, Box 210, State Board of Health, Jacksonville, Fla., Nutrition Consultant
 Capt. Ralph S. Weston, V.C., AAF Regional Hospital, Lincoln, Nebr., Veterinarian

Maternal and Child Health Section

Viney W. Ford, R.N., P. O. Box 594, Perry, Fla., Taylor County Certified Nurse Midwife
 Helen D. Heinen, M.D., 5748 Drexel Ave., Chicago, Ill., Chief, Child Welfare Section, Chicago Health Dept.

Public Health Education Section

Thomas J. Carter, M.D., Dr.P.H., 323 Thornapple St., Chevy Chase, Md., Chief, Preventive Medicine Division, Bureau of Medicine and Surgery, Navy Dept.
 Abby DeShazo, M.P.H., 303 Terminal Sales Bldg., Portland, Ore., Health Education Consultant, War Food Administration
 Rosalie B. Hauserman, R.N., 21260 Stratford Ave., Rocky River, Ohio, Student, School of Nursing, Western Reserve Univ.
 Margaret M. Mathis, 11021 Crenshaw, Inglewood, Calif., Supervisor of School Health, Los Angeles Board of Education
 James A. Morrow, M.Ed., 410 W. Border Drive, Spring Hill, Ala., Asst. Sanitarian (R), and Area Supervisor, U. S. Public Health Service
 Perley H. Roberts, D.M.D., Rochester, N. H., Chairman, New Hampshire Council on Dental Health
 Cpl. William H. Rost, Brooke General and Convalescent Hosp., Annex 4, DMD, Fort Sam Houston, Tex., Noncommissioned Officer in charge of Physical Reconditioning
 Constance Salvati, 184-6th Ave., New York, N. Y., Laboratory Technician and Clinical Asst., The Stuyvesant Polyclinic
 Sylvia B. Sturdevant, 478 Neshannock Ave., New Castle, Pa., Exec. Secy., Lawrence County Tuberculosis Society

Public Health Nursing Section

Verna O. Adrien, R.N., Grandville, RR 1, Michigan, Supervisor, Community Health Service (Grand Rapids)
 Lillian M. Ashley, R.N., P. O. Box 163, Vir-

ginia Beach, Va., Princess Anne County
Public Health Nurse
Mary Jean Day, North Street, New Martins-
ville, W. Va., Public Health Nurse Trainee,
Wetzel County
Meta Deininger, 27 Maple St., Salamanca,
N. Y., Senior Nurse, Cattaraugus County
Dept. of Health
Sara M. Errickson, 148 Cedar Ave., Long
Branch, N. J., Student, Seton Hall College
Bertha Frook, R.N., 7653 Yates Ave., Chi-
cago 49, Ill., Director, South Shore Hos-
pital School of Nursing
E. A. Electa MacLennan, M.A., R.N., 1411
Crescent St., Room 401, Montreal, Que.,
Canada, Asst. Secy., Canadian Nurses Assn.
Charlotte Noble, R.N., 113-20 76th Road,
Forest Hills, L. I., N. Y., Student, Public
Health Nursing, Teachers College, Columbia
Univ.
Alma H. Petersen, R.N., 1000 University Ave.,
S.E., Minneapolis 14, Minn., Hospital Ad-
visor, State Dept. of Health
Marjorie E. Rix, R.N., 1024 W. Beaver Ave.,
State College, Pa., Public Health Nurse,
State College Red Cross Chapter
Miriam M. Slight, R.N., 2032 Washburn,
Topeka, Kan., Public Health Nurse, Topeka-
Shawnee Health Dept.
Alma T. Smith, R.N., Algoma, W. Va., School
Nurse, McDowell County Board of
Education
Harriet B. Stewart, District Health Office,
Cedar City, Utah, Public Health Nurse
Maxine C. Stewart, Box 506, Rt. 1, Petaluma,
Calif., Visiting Nurse, American Red Cross
Elva Jane Waters, Box 360, San Luis Obispo,
Calif., General Staff Nurse, San Luis
Obispo County Health Dept.

Epidemiology Section

Miguel Dao, M.D., Apartado 26 Puerto
Cabello, Venezuela, S. A., Epidemiologist,
Caracas Health Dept.
William Mondragon Mejia, M.D., M.P.H.,
Bolivia 38-66, Medellin, Colombia, S. A.,
Director, Division of Epidemiology, State
Dept. of Health
Everett L. Seymour, Ellis Grove, Ill., Com-
municable Disease Investigator, State Dept.
of Health
Samuel Zibit, 215 Church Ave., Brooklyn,
N. Y., Statistician, City Dept. of Health

School Health Section

Talmadge L. Hill, Sr., M.A., Morgan State
College, Faculty Apt. 3, Baltimore 12, Md.,
Instructor in Personal Hygiene and Public
Health

Rose E. Krug, R.N., 4 North Anderson St.,
Aurora, Ill., School Nurse and Attendance
Officer, School District 131
Caro Lane, M.A., State Dept. of Education,
Baton Rouge, La., Acting Supervisor of
Health
P. Ralph McFeely, M.D., 242 Palisade Ave.,
Bogota, N. J., School Physician
Mary G. McGovern, 100 Park Ave., Madison,
N. J., School Nurse and Head, Bloomfield
Board of Education

Dental Health Section

J. Floyd Alcorn, D.D.S., 3720 Washington
Ave., St. Louis 8, Mo., Chairman, Council
on Dental Health, Missouri State Dental
Assn.
Leroy C. Andersen, D.D.S., Flint Bldg.,
Jamestown, N. D., Chairman, Public Health
Committee, North Dakota State Dental
Assn.
Ira D. Beebe, D.D.S., 886 Main St., Bridge-
port 3, Conn., Chairman, Council on
Dental Health, Connecticut State Dental
Assn.
Lloyd H. Dodd, D.D.S., 860 Citizens Bldg.,
Decatur, Ill., Chairman, Committee on
Dental Health Education, Illinois State
Dental Society
F. M. Matteson, D.D.S., Highmore, S. D.,
Chairman, South Dakota Public Health
Education Committee, State Dental Society
Maxwell Sherman, D.M.D., 13 Main St.,
Hingham, Mass., Supervisor of Dental
Clinics, Hull, Mass.
H. K. Willits, D.D.S., 750 N. 10th St., Read-
ing, Pa., Chairman, Pennsylvania Council
on Dental Health

Unaffiliated

A. Max Boxer, M.D., 181 Hawthorne St.,
Brooklyn 25, N. Y., Private Practice
Charles H. Bynum, A.M., 120 Broadway,
New York 5, N. Y., Director of Negro Ac-
tivities, National Foundation for Infantile
Paralysis
Dudley D. Conner, D.V.S., P. O. Box 215,
Baton Rouge, La., Veterinarian
Reuben Hoffman, M.D., Maryland Tubercu-
losis Sanatorium, Henryton, Md., Superin-
tendent, Colored Branch
Harold E. Ogborn, C/Ph., U.S.N., District
Medical Office, 12th Naval Dist., San Fran-
cisco, Calif., Sanitation Officer
Robert E. Serfling, M.S., 620 S. 3rd St.,
U.S.P.H.S., Louisville, Ky., State MCWA
Entomologist, State Dept. of Health, P. A.
Sanitarian (R), U. S. Public Health Service

DECEASED MEMBERS

- H. S. Berman, M.D., Detroit, Mich., Elected Member 1932, Maternal and Child Health Section
- George M. B. Bradshaw, M.D., Panama, N. Y., Elected Member 1936, Health Officers Section
- Blanche M. Haines, M.D., Three Rivers, Mich., Elected Member 1920, Elected Fellow 1928, Maternal and Child Health Section
- Nehemiah Janko, M.D., New York, N. Y., Elected Member 1937, Industrial Hygiene Section
- N. Estes Nichols, M.D., Portland, Maine, Elected Member 1911, Unaffiliated
- S. Josephine Baker, M.D., Dr.P.H., Belle Mead, N. J., Elected Member 1915, Elected Fellow 1922, Charter Fellow, Maternal and Child Health Section
- William J. Ellis, Ph.D., Trenton, N. Y., Elected Member 1928, Public Health Education Section
- Fred A. Wiggers, Toledo, Ohio. Elected Member 1940, Laboratory Section

THE AMERICAN JOURNAL OF PUBLIC HEALTH IN FRANCE

The Office of War Information is sending 50 copies of the *American Journal of Public Health* to France beginning with the current month. In transmitting the order, it was announced that the circumstances are exceptional. Ordinary commercial transactions have not yet been opened up. Yet, it was stated, there is a compelling demand for a special group of American magazines to be sent to France at once. The *American Journal of Public Health* is one of those selected. They are wanted, it was explained, for a very definite and important purpose and in response to an urgent demand from abroad. It was suggested that the Association should feel a sense of pride in

the fact that the *Journal* was selected for special handling long before ordinary commercial transactions have been permitted with France.

CLOSING DATE FOR ACCEPTING FELLOWSHIP APPLICATIONS FOR 1945 ELECTION

The Administrative Office has already announced through the A.P.H.A. *Newsletter* that the annual election of Fellows, Life Members, and Affiliated Societies will take place this fall, although the present forecast is for no Annual Meeting in 1945. The closing date for accepting Fellowship applications for 1945 election will be August 1, and members interested in applying for such affiliations are urged to submit their applications as much in advance of this date as possible.

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York 19, N. Y.

POSITIONS AVAILABLE

(Supplemental to lists in recent Journals)

Wanted: Two engineers for Industrial Hygiene Service of Tennessee. Four different starting salaries between \$2,364 and \$3,900 depending on training and experience. Car furnished. Positions permanent. Opportunity for advancement. Apply Dr. R. H. Hutcheson, Commissioner of Health, Nashville 3, Tenn.

Wanted: Physician, Division of Child Hygiene, Ohio Dept. of Health. Salary \$4,200. Must be graduate of approved medical school, have 1 year's internship and at least 1 year graduate training, plus 1 year of training or experience in clinical pediatrics or obstetrics. Experience in maternal and child health desirable. Must be licensed in Ohio or eligible for licensure. Apply Chief of Division of Child Hygiene, Dept. of Health, State Departments Bldg., Columbus 15, Ohio.

Positions open: District and County Health Officers in Florida. Medical degree required. Write or wire Merit System Supervisor, State Board of Health, Gainesville, Fla., for complete information.

Physician wanted: Public health pediatrics and epidemiology in large California County Health Department. Major duties consist of infant and pre-school health conferences, school examinations, and epidemiology. Beginning salary \$455 per month, plus travel allowance, and one meal a day. California license required. Training, experience in pediatrics or public health desirable. Immediately available. Apply William C. Buss, M.D., Kern Co. Health Dept., Bakersfield, Calif.

Bureau of Tuberculosis, Board of Health, Territory of Hawaii, seeks Biometrician or Statistician. Position

will probably be classified under Territorial Civil Service as CAF-8 with salary of \$244.59 plus wartime bonus of \$50 and yearly increment of about \$192 up to 5 years. Bureau of Tuberculosis is also looking for young physician experienced in tuberculosis work to have immediate charge of active case finding survey program now under way. This position classified under Territorial Civil Service as P-5 with salary of \$416.67 plus \$50 wartime bonus and yearly increment of about \$250 up to 5 years. Apply Robert H. Marks, M.D., Director, Bureau of Tuberculosis, Territorial Board of Health, Honolulu, T.H.

Wanted: Bacteriologist with B.S. or M.S. degree, preferably male, to teach student nurses, 45 hour course twice a year, to assist with teaching of second year medical students and do general laboratory work. Salary \$2,000 with option of complete maintenance for \$25 per month. Apply Dr. R. J. Schenken, Director, Dept. of Pathology and Bacteriology, Louisiana State University School of Medicine, New Orleans 13, La.

Wanted: Immediately: Veterinarian for Columbia County Department of Health. Salary—maximum \$3,600 per year plus automobile and up-keep. Veterinarian must be licensed in New York State. Address Dr. Sue H. Thompson, 612 Warren Street, Hudson, N. Y. Position for the duration of the war.

POSITION WANTED

Health educator, Ph.D., Harvard, with training in medical sciences, public health and education, experienced as teacher. seeks position in Northeastern United States. H-512

[END OF A.P.H.A. LISTING]

Opportunities Available

Advertisement

WANTED—(a) Physicians, men or women, to act as district medical health officers; urban or frontier Alaska, \$5,500, up, depending upon experience and capabilities; unlimited opportunities for research in relationships nutrition, crippling and eye conditions to tuberculosis and housing. (b) Public Health physician; municipal department of health; generalized program; work includes well baby clinics, maternity centers, pre-school clinics, and venereal work for the indigent; woman eligible; college town of 100,000; Middle West. (c) Physician thoroughly familiar with malaria and its attendant problems; should be familiar with general measure of sanitation imperative to control of tropical diseases as well as their diagnosis and treatment; medical staff; large American company; Latin America. (d) Young woman physician to direct student health department; young women's college; preferably someone who has educational point of view and who is interested in preventive health measures as well as clinical procedures. (e) Director of student health department; health service consists of clinic which cares for 40-50 patients daily and infirmary of 40 beds; student enrollment now averaging 1,500; town of 12,000; Pacific Northwest. (f) Obstetrician and, also, pediatrician for consultant appointments, state department of health; South. **PHG-1**

WANTED—(a) Bacteriologist; state board of health laboratories; public health experience desirable; Middle West. (b) Bacteriologist well qualified in

medical parasitology; municipal laboratories established to utilize recently developed laboratory diagnostic procedures in connection with virus diseases; Middle West. (c) Bacteriologist and serologist; state department of health; \$200-\$275; South. (d) Graduate nurse qualified in clinical laboratory procedures for position in college student health department; duties include teaching biology and chemistry; co-educational college in the Middle West which will have detachment of Army beginning July first; preferably someone interested in serving with Army unit; \$200, including maintenance. **PHG-2**

WANTED—(a) Health educator; new public health program, emphasizing venereal diseases and social hygiene; previous experience in conducting health education program required; \$3,600-\$4,800; South-western city of 200,000. (b) Orthopedic nurse for appointment with public health department; \$2,200 plus traveling expenses; Michigan. (c) Public health nutritionist; city department of health; South. (d) Student health nurse; young women's college; approximately 300 students; South. (e) Director of public health program; must be qualified to supervise generalized public health nursing program; new division of public health education now being established; city-county health department; South-west; salary dependent upon qualifications but not less than \$200 including travel expenses. (f) Two industrial nurses; large plant; vicinity District of Columbia. **PHG-3**. The Medical Bureau, Burneice Larson, Director, Palmolive Building, Chicago, Ill.

Situations Wanted

Advertisement

PUBLIC HEALTH PHYSICIAN is available; has been in public health field since 1920, serving as professor and head of department of public health, state university, for number of years; recognized nationally as leader. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Ill.

DENTIST—honorably discharged from the Dental Corps of the Army, is available; prior to induction conducted a successful private practice; year's interest in one of the country's leading dental clinics. For further details, please write Burneice Larson, Director, The Medical Bureau, Palmolive Building, Chicago, Ill.

HEALTH EDUCATOR—B.S. in Education, M.A. in Health Education; record of successful experience as industrial and public health counsellor. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Ill.

BACTERIOLOGIST is available for teaching or public health position; A.B., M.S., Ph.D. degrees; twelve years' academic experience during which time he served as professor and head of the department of bacteriology in a university medical school for eight years; past several years, director of research with one of the foundations. For further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago, Ill.

NEWS FROM THE FIELD

State Health Officers

1945

IN publishing the list of state health officers for 1945, it was suggested that the year of appointment be included. Then one of our statistical puzzle solvers from the Vital Statistics Section began to spot trends and found that the aggregate length of service is approximately 360 years, which averages about seven and a half years per state health officer. However, more than half, 28 to be exact, have had five years or less of service in their present responsibilities, and only six have had 20 years or more. Since the list was last published in the *Journal* of June, 1943, there have been 13 changes in state health officers. There have already been three new appointments in 1945—the Health Officers of Ohio, Oregon, and Washington.

From the records available, at least 15 possess graduate public health de-

grees, in addition to their experience, and at least an equal number have rich backgrounds of experience. Twenty-three are Fellows of the A.P.H.A. and all but two are members.

Among the state health officers are three Ex-Presidents of the American Public Health Association, as well as the current Chairman of the Association's Committee on Administrative Practice and the Chairman of the Health Officers Section. Eight serve on the Governing Council of the Association. The state health officers are further represented on the Association's Standing Committees on Research and Standards and on Eligibility and on the Subcommittees on Educational Qualifications, State and Local Health Administration, Evaluation of Administrative Practices as to Diphtheria, and Local Health Units.

| <i>Health Officer</i> | <i>Year
Appointed</i> | <i>Health Officer</i> | <i>Year
Appointed</i> |
|--|---------------------------|---|---------------------------|
| ALABAMA | | COLORADO | |
| Burton F. Austin, M.D.,† | 1942 | Roy L. Cleere, M.D., M.P.H.,* | 1935 |
| State Health Officer, Montgomery | | Secretary and Executive Officer,
Division of Public Health, Denver | |
| ARIZONA | | CONNECTICUT | |
| George F. Manning, M.D.,† | 1941 | Stanley H. Osborn, M.D., C.P.H.,* | 1922 |
| State Superintendent of Public
Health, Phoenix | | State Health Commissioner,
Hartford | |
| ARKANSAS | | DELAWARE | |
| T. T. Ross, M.D., M.P.H.,† | 1944 | Edwin Cameron, M.D., M.P.H.* | 1941 |
| State Health Officer, Little Rock | | Executive Secretary,
State Board of Health, Dover | |
| CALIFORNIA | | FLORIDA | |
| Wilton L. Halverson, M.D.,
Dr.P.H.* | 1943 | Henry Hanson, M.D.,* | 1942 |
| Director of Public Health, State
Dept. of Public Health,
San Francisco | | State Health Officer, Jacksonville | |

| <i>Health Officer</i> | <i>Year
Appointed</i> | <i>Health Officer</i> | <i>Year
Appointed</i> |
|---|---------------------------|---|---------------------------|
| GEORGIA | | MINNESOTA | |
| T. F. Abercrombie, M.D.,
State Commissioner of Health,
Atlanta | 1917 | A. J. Chesley, M.D.*
Secy., State Board of Health,
St. Paul | 1921 |
| IDAHO | | MISSISSIPPI | |
| L. J. Peterson,*
Administrative Director,
Department of Public Health,
Boise | 1943 | F. J. Underwood, M.D.,*
Executive Officer, Board of
Health, Jackson | 1924 |
| ILLINOIS | | MISSOURI | |
| Roland R. Cross, M.D.,†
State Director of Public Health,
Springfield | 1939 | James Stewart, M.D.,†
State Health Commission,
Jefferson City | 1940 |
| INDIANA | | MONTANA | |
| Thurman B. Rice, M.D.,†
Acting State Health Commis-
sioner, Indianapolis | 1943 | W. F. Cogswell, M.D.,*
State Health Officer, Helena | 1913 |
| IOWA | | NEBRASKA | |
| W. L. Bierring, M.D.,*
State Health Commissioner,
Des Moines | 1933 | C. A. Selby, M.D.,†
State Director of Health,
Lincoln | 1943 |
| KANSAS | | NEVADA | |
| F. C. Beelman, M.D.,*
Secy., State Board of Health,
Topeka | 1941 | Edward E. Hamer, M.D.,†
Secy., State Board of Health,
Carson City | 1927 |
| KENTUCKY | | NEW HAMPSHIRE | |
| Philip E. Blackerby, M.D.,†
State Health Officer, Louisville | 1943 | Alfred L. Frechette, M.D.,
M.P.H.,†
State Health Officer, Concord | 1943 |
| LOUISIANA | | NEW JERSEY | |
| David E. Brown, M.D.,†
State Health Officer, New Orleans | 1942 | J. Lynn Mahaffey, M.D.,†
State Director of Health, Trenton | 1931 |
| MAINE | | NEW MEXICO | |
| Roscoe L. Mitchell, M.D.,†
Director, State Bureau of Health,
Augusta | 1939 | James R. Scott, M.D., Ph.D.*
(Health Education),
State Director of Public Health,
Santa Fe | 1940 |
| MARYLAND | | NEW YORK | |
| Robert Riley, M.D., Dr P.H.,*
State Director of Health,
Baltimore | 1928 | Edward S. Godfrey, Jr., M.D.,*
State Commissioner of Health,
Albany | 1936 |
| MASSACHUSETTS | | NORTH CAROLINA | |
| Vlado A. Gettung, M.D., Dr P.H.,†
State Commissioner of Public
Health, Boston | 1943 | Carl V. Reynolds, M.D.,*
State Health Officer, Raleigh | 1934 |
| MICHIGAN | | NORTH DAKOTA | |
| William DeKleene, M.D.,*
State Health Commissioner,
Lansing | 1944 | George F. Campana, M.D., C.P.H.,†
State Health Officer, Bismarck | 1944 |
| | | OHIO | |
| | | Roger E. Heering, M.D., M.P.H.,†
Director of Health, Columbus | 1945 |

| <i>Health Officer</i> | <i>Year
Appointed</i> | <i>Health Officer</i> | <i>Year
Appointed</i> |
|---|---------------------------|---|---------------------------|
| OKLAHOMA | | UTAH | |
| Grady F. Mathews, M.D.,†
State Health Commissioner,
Oklahoma City | 1939 | William M. McKay, M.D.,†
State Health Commissioner,
Salt Lake City | 1939 |
| OREGON | | VERMONT | |
| H. M. Erickson, M.D., M.P.H.,*
State Health Officer, Portland | 1945 | Charles F. Dalton, M.D.,†
State Health Officer, Burlington | 1912 |
| PENNSYLVANIA | | VIRGINIA | |
| Alexander Hamilton Stewart,
M.D.,†
Secretary of Health, Harrisburg | 1940 | I. C. Riggins, M.D.,†
State Health Commissioner,
Richmond | 1934 |
| RHODE ISLAND | | WASHINGTON | |
| E. A. McLaughlin, M.D.,†
State Health Officer, Providence | 1935 | Arthur L. Ringle, M.D., C.P.H.,†
State Director of Health, Seattle | 1945 |
| SOUTH CAROLINA | | WEST VIRGINIA | |
| Ben F. Wyman, M.D.,*
State Health Officer, Columbia | 1944 | John Edward Offner, M.D.,†
State Commissioner of Health,
Charleston | 1943 |
| SOUTH CAROLINA | | WISCONSIN | |
| Gilbert Cottam, M.D.,†
State Superintendent of Health,
Pierre | 1943 | Carl Neupert, M.D., M.S.P.H.,*
State Health Officer, Madison | 1943 |
| TENNESSEE | | WYOMING | |
| R. H. Hutcheson, M.D., C.P.H.,*
State Commissioner of Health,
Nashville | 1943 | G. M. Anderson, M.D.,†
State Health Officer, Cheyenne | 1944 |
| TEXAS | | Source: Dates of appointment from
A.P.H.A. correspondence, membership and
fellowship records, <i>Who's Who in America</i>
or <i>Who's Who in Medicine and Surgery</i> .
If errors have crept in the Association will
appreciate having them corrected. | |
| George W. Cox, M.D.,†
State Health Officer, Austin | 1937 | | |

PLANNING THE TRANSITION FROM WAR TO PEACE IN SANITARY ENGINEERING

Speaking under the above title, Abel Wolman, Dr.Eng., of Baltimore, Md., reported on April 10, at the Conference of State and Territorial Health Officers with the Surgeon General of the U. S. Public Health Service in Washington, on the objectives of the Sanitary Engineering Division of the Procurement and Assignment Service, War Manpower Commission.

Dr. Wolman pointed out that since late in 1942 the Committee on Sanitary Engineering of the National Research Council has been closely in

touch with sanitary engineering representatives of the military forces and of the U. S. Public Health Service, to take action upon sanitary engineering questions of vital importance to the war effort. This committee, of which Dr. Wolman is Chairman, is made up of Professor Harold E. Babbitt, Urbana, Ill.; F. C. Bishopp of the Bureau of Entomology, Department of Agriculture, Washington; V. M. Ehlers, Austin, Tex.; Prof. Gordon M. Fair, Cambridge, Mass.; Dr. Kenneth F. Maxcy, Baltimore, Md.; and H. A. Whittaker, Minneapolis, Minn.

In February, 1943, this committee

was constituted the Advisory Committee of the War Manpower Commission on sanitary engineering and shortly thereafter the Division of Sanitary Engineering of the Procurement and Assignment Service, War Manpower Commission, was established with the following objectives: (1) To determine the military and civilian needs for sanitary engineers, (2) To develop a roster of all sanitary engineers, (3) To establish a well balanced allocation to meet the military needs without depriving the civilian population of essential sanitation services.

A roster was developed containing the names of 3,559 sanitary engineers, of whom 1,503 are commissioned officers in the public service. Of these 959 are in the Army, 411 in the Public Health Service, and 133 in the Navy.

With the help of state advisers who, for the most part, were the chief sanitary engineers of the state health departments, 799 sanitary engineers have been classified as essential for the protection of civilian public health. Others have been declared available for military service and these sanitary engineers have constituted the source of supply for the military forces and for the Public Health Service. The Washington office during this time has been in charge consecutively of Major C. W. Klassen, Major David Smallhorst, both of the Sanitary Corps, AUS, and of Ellis S. Tisdale, Senior Sanitary Engineer, U. S. Public Health Service.

Since this Sanitary Engineering Office in the War Manpower Commission has proved extremely valuable in channeling sanitary engineers from civilian life to posts of duty in the military forces, the Committee on Sanitary Engineering has recommended its utilization to provide for an orderly withdrawal of sanitary engineers from the Army, and for their most effective utilization in civilian life. The State Adviser continues as the official repre-

sentative of the War Manpower Commission for the duration of the war, in carrying forward an orderly program for the most effective distribution and utilization of sanitary engineers. This includes advising and counseling with sanitary engineers as they leave the military services and reënter civilian life.

USE OF DDT FOR MOSQUITO CONTROL IN THE UNITED STATES

*A joint statement of policy by the U. S.
Army and the U. S. Public
Health Service*

Successful use of the new insecticide DDT to combat insect-borne disease among our troops overseas has brought sudden renown and notoriety to this potent war-developed insect killer. Dramatic reports of its large scale use to control epidemics, and especially the spraying of DDT from aircraft have fired public imagination and fostered the hasty conclusion that DDT is a complete solution to all of our insect-borne disease problems. However, it must be remembered that DDT distributed over the countryside not only wipes out malaria-carrying mosquitoes but also may kill other insects, many of which are beneficial. Much still must be learned about the effect of DDT on the balance of nature important to agriculture and wild life before general outdoor application of DDT can be safely employed in this country. It may be necessary to ignore these considerations in war areas where the health of our fighting men is at stake, but in the United States such considerations cannot be neglected.

Extensive investigations are now being carried out by authorized agencies to determine the usefulness and possible hazards in the large-scale dissemination of DDT. Until more information has been obtained from such investigations and until it has been evaluated by all interested parties, plans to employ DDT

indiscriminately for outdoor area control of insect disease vectors in this country are not to be encouraged.

Since the beginning of mobilization the Army has carried on an extensive anti-mosquito campaign inside of military reservations and the U. S. Public Health Service has maintained a co-operative program for the control of malaria in adjacent extra-military areas. This joint effort has successfully prevented malaria from becoming a problem to troops in this country. To meet the hazard of possible spread of malaria by troops returning from overseas, the Army's program in military areas has been intensified and the program of the Public Health Service has been extended to include certain additional selected areas in the South where risk of transmission is greatest. Representatives of the Army and the Public Health Service have given full consideration to ways in which this mosquito control program might be strengthened by employing DDT. The following joint policy has been agreed upon pending acquisition of further knowledge concerning the large-scale outdoor application of DDT.

1. DDT will be used for residual spray application to houses and other buildings for the purpose of killing adult mosquitoes before they have opportunity to transmit malaria. The long-lasting killing effect of DDT as a residual spray provides a highly effective means to prevent the spread of the malarial parasite. This method of use is safe and economical, and, moreover, is welcomed by the householder because it provides freedom from insect annoyance.

2. The use of DDT as a mosquito larvicide will be limited to experimental investigations and to situations where DDT has definite advantage over other larvicides in saving materials and man power, and where it presents no hazard to fish and other wild life.

3. Distribution of DDT from aircraft for large-scale area control of mosquitoes in military and adjacent areas in the United States will be limited to projects conducted with due regard to the possible effects of DDT on beneficial insects and all forms of plant and animal life and in accordance with

safeguards established by the Surgeons General of the Army and the Public Health Service.

ULTRA-VIOLET DISINFECTION OF ENCLOSED SPACES

The paper entitled "Principles of Ultra-Violet Disinfection of Enclosed Spaces," by L. J. Buttolph, Sc.D., of Cleveland, Ohio, which was presented in the symposium at the New York Annual Meeting of the A.P.H.A. in 1944, before the Epidemiology, Health Officers, Laboratory, Engineering, and School Health Sections, was carried in the May issue of the *Journal of the American Society of Heating and Ventilating Engineers*.

FILM EQUIPMENT AVAILABLE IN SCHOOLS OF NURSING

The Metropolitan Life Insurance Company has recently released a study of film equipment available in schools of nursing, supplementing the figures released last year of film-showing equipment owned by or available to social, health, and safety agencies. The Motion Picture Bureau of the Metropolitan Life Insurance Company, 1 Madison Avenue, New York, N. Y., will be glad to furnish details of the survey to schools of nursing and health agencies.

MARYLAND HEALTH OFFICERS HOLD TWENTY-FIFTH ANNUAL CONFERENCE

The Maryland State Department of Health, R. H. Riley, M.D., Dr.P.H., Director of Health, held the 25th annual conference of the staff of the department on May 18 and 19 at Johns Hopkins University School of Hygiene and Public Health, Baltimore. Special arrangements were made to have the Deputy State Health Officers visit the Baltimore Rapid Treatment Center of the Venereal Disease Division, Baltimore City Hospital. Other subjects

included were the blood program of the American Red Cross, the care of crippled children, the tuberculosis program, and nutrition. Simultaneous meetings were held for the sanitation staff and for the staff of public health nurses.

NEW DIVISION OF CANCER CONTROL IN KANSAS

The 1945 session of the Kansas State Legislature appropriated funds which made possible the establishment of a Division of Cancer Control in the Kansas State Board of Health, according to the *March News Letter* of the Kansas State Board of Health, F. C. Beelman, M.D., Secretary. The official public health program to reduce needless deaths from cancer will be instituted immediately.

BIOMETRICS BULLETIN

The American Statistical Association has announced the publication of Volume 1, No. 1 of the *Biometrics Bulletin*, to be published six times a year for the Biometrics Section of the A.S.A. Among the Editorial Committee for the *Bulletin*, public health workers will be interested in the name of Lowell J. Reed, Ph.D., F.A.P.H.A., of Baltimore, Md.

The *Bulletin* announces a department which welcomes inquiries related to biometrics, whether involving theory, calculational procedures, or the interpretation of statistical results. The A.S.A. may be addressed at 1603 K Street, N.W., Washington 6, D. C.

COLONEL LUNDEBERG RECEIVES LEGION OF MERIT

Colonel Karl R. Lundeborg, MC, of Washington, D. C., has been awarded the Legion of Merit for work performed while he was Chief of the Epidemiology Division, Preventive Medicine Service, Office of the Surgeon General, U. S. Army, "for exceptional meritorious

conduct . . . in initiating and supervising the development of new methods for the improved control of communicable diseases in the Army, with special reference to the development of the present program for vaccination against infectious diseases and the general control of infectious diseases among troops."

INSTITUTE ON HEALTH PRACTICE EVALUATION AT THE UNIVERSITY OF MICHIGAN

Representatives from state and local health departments from 10 states, together with regional office representation from the U. S. Public Health Service and others made up a group of 50 people attending an Inservice Training Course in Evaluation of Public Health Practice at the School of Public Health of the University of Michigan in Ann Arbor, the week of April 16 to 20. State health department directors included Floyd C. Beelman, M.D., of Kansas, Carl N. Neupert, M.D., of Wisconsin, and William DeKleine, M.D., of Michigan. Record analysts and health educators were present from a number of state health departments.

Sessions were devoted to the uses and methods of evaluation and a critical analysis of the underlying principles of health appraisal. The course was carried out on the workshop plan with wide audience participation.

Session leaders included Carl E. Buck, Dr.P.H., George B. Darling, Dr.P.H., Mayhew Derryberry, Ph.D., Haven Emerson, M.D., Colonel Ira V. Hiscock, George T. Palmer, Dr.P.H., and Henry F. Vaughan, Dr.P.H., Dean of the School of Public Health.

The states represented were Texas, Oklahoma, Kansas, Louisiana, Mississippi, Kentucky, Illinois, Indiana, Wisconsin and Michigan.

It is anticipated that this course will be repeated next year for another group of states.

NEW YORK CITY OPENS CITY-WIDE NUTRITION CLINIC

Frank A. Calderone, M.D., Acting Commissioner of Health of New York City, in the absence of Ernest L. Stebbins, M.D., Commissioner, has announced the establishment of a city-wide nutrition clinic at the Lower East Side Health and Teaching Center, 341 East 25th Street, Manhattan, with Norman Jolliffe, M.D., as Chief of Clinic.

According to Dr. Calderone, the purposes of the clinic include the furnishing of a diagnostic and treatment center and consultation clinic for patients suspected of having nutritional abnormalities, and to furnish a training center for physicians, nurses, and others interested in the diagnosis, treatment, and prevention of deficiency diseases. It is expected also that the clinic will develop and correlate diagnostic methods for the detection of early nutritional diseases, obtain information concerning food habits in relation to nutritional changes, and in general to carry on studies in this field. Plans are being formulated for the Public Health Research Institute and the Nutrition Division of the Department of Health to cooperate with this nutrition clinic.

RHEUMATIC FEVER MADE A REPORTABLE DISEASE IN PHILADELPHIA

Effective immediately, rheumatic fever and rheumatic heart disease are reportable to the Division of Communicable Disease of the Department of Public Health. According to *Philadelphia Medicine*, all physicians are requested to cooperate in this matter.

MALARIA CONTROL PROGRAM IN KENTUCKY

DDT will be used in a malaria control program for rural areas of McCracken, Graves, Hickman and Fulton Counties in accordance with

plans adopted by a meeting in Paducah recently. The control program is sponsored by the U. S. Public Health Service, the State Department of Health and the local county health organizations.

GENERAL HOSPITALS DESIGNATED AS TROPICAL DISEASE CENTERS

The Office of the Surgeon General, U. S. Army, has announced that Harmon General Hospital at Long View, Tex., and Moore General Hospital at Swannanoa, N. C., have been designated for the treatment of tropical diseases. The medical staff of Harmon General Hospital for some time has been engaged in the study of relapsing malaria which has resulted in a permanent contribution to the knowledge of the disease, according to Lt. Col. Francis R. Dieuaide, MC, Chief of the Tropical Disease Branch. This study is now being extended to other tropical diseases which are rare in this country, such as filariasis, schistosomiasis and dysentery.

WEST VIRGINIA STATE HEALTH BOARD INCREASES SCOPE

Under a bill passed recently, the State Health Department in West Virginia has advisory medical supervision of all the state emergency, tuberculosis and mental hospitals. The State Board of Control will continue to exercise full control of the business and fiscal affairs of all the institutions. Under the old law the State Health Department had the medical supervision of tuberculosis sanatoria only. The new law authorizes the State Health Commissioner to establish a Bureau of Mental Health and to conduct mental hygiene clinics, utilizing the professional services of the state mental hospitals. He will cooperate with the State Department of Education and other school authorities in making available to schools the services of psychologists

and psychiatrists, by conducting educational programs and by other means approved by the Public Health Council.

PUERTO RICO PUBLIC HEALTH ASSOCIATION

At the recent annual meeting of the Puerto Rico Public Health Association, held in San Juan at the University of Puerto Rico School of Tropical Medicine, 542 persons were registered. Among overseas visitors were Dr. K. F. Yao, Dr. Wei Chang, Dr. Winston Yung, from China; Dr. Luis F. Navarro from Peru; Dr. Elsie Fallas from Costa Rica; Dr. Guillermo González from Mexico; Mr. Guillermo Releno from Panama; Dr. Edmundo Taveras, Mr. Jose Defillo Sanz, Mr. Jose M. Gabral Travieso from the Dominican Republic; Dr. Dorothy Nyswander, Professor Earle B. Phelps and Miss Elnora E. Thompson from the United States; Miss Martha P. Catelain and Miss Loretta P. Anderson from Port-au-Prince, Haiti.

A feature of the meeting was the attendance by a considerable number of those outside of the immediate field of public health, including mayors from the municipalities, members of the faculty of the University of Puerto Rico, representatives from civic groups and many others.

The following officers were elected for 1945:

President—Jose N. Gandara, M.D.
President elect—A. M. Marchand, M.D.
Vice President—Catalina Burgos, R.N., C.P.H.N.
Secretary—Guillermo Arbona, M.D.
Treasurer—Gonzalo Diago, Jr., C.E.
Members of Board of Directors—Raphael Timothee, M.D., Rafaela Salgado, R.N., C.P.H.N., Georgina Pastor, Francisco Landron, Ph.D., E. J. Herring, S.E., Vicente Roure.

PAN AMERICAN SANITARY BUREAU ESSAY
AWARDS TO LATIN AMERICANS
The awards in the Pan American

Health Day Essay Contest in commemoration of the fifth Pan American Health Day, December 2, 1944, have been made to twenty-four persons in Latin America. The Lily-Tulip Cup Corporation, in coöperation with the Pan American Sanitary Bureau, announces that this contest brought essays from high school students of fourteen Latin American countries on the subject "What My Country Has Contributed to International Health Co-operation or Knowledge in the Field of Water, Food and Beverage Sanitation." Winning entries were received from students in the high schools of Argentina, Brazil, Costa Rica, Cuba, El Salvador, Guatamala, Haiti, Honduras, Peru, Uruguay, Bolivia, Columbia, Ecuador, and Mexico.

PERSONALS

Central States

MARK A. BAILEY, M.D., was recently appointed Health Officer of Fennimore, Wis.

EDGAR K. BLACK, M.D., has been named City Health Officer of Wabash, Ind., succeeding Dr. LAURENCE E. JEWETT, resigned.

PATRICK S. BRADY, of Hays, Iowa, has been named Health Officer of Ellis County, succeeding Dr. GARDNER A. SURFACE, Ellis, Iowa.

LT. COL. WILLIAM E. BROWN,[†] Associate Professor of Preventive Medicine from the University of Cincinnati, Ohio, now on leave, is serving with the UNRRA staff as Chief Medical Officer for the Balkan Mission and more lately as Chief Medical Officer for Greece.

HUBERT M. ENGLISH, M.D., has been elected President of the Gary, Ind., Board of Health.

PAUL R. ENSIGN, M.D.,* of Topeka, Kans., has been appointed Director

of the Division of Maternal and Child Health in the Kansas State Board of Health. He recently has served as Assistant Director of the same Division. Dr. Ensign is a graduate of Northwestern University Medical School in 1936.

VALENTINE A. GUDEX, M.D.,† of Milwaukee, Wis., has resigned as Deputy State Health Officer. He was connected with the State Board of Health for twenty-six years.

CHANGES IN HEALTH OFFICERS IN ILLINOIS

JAMES T. GOOGE, M.D.,* Health Officer of District Number 6 with headquarters at Gilman, has been appointed to a similar position with the McDonough and Fulton County unit succeeding the late DR. CYRUS P. McRAVEN, Macomb.

SIDNEY I. FRANKLIN, M.D.,* on March 21 was appointed Health Officer of the recently formed DuPage County Health Department.

BERNARD E. BOLOTOFF, M.D.,† has been named Health Officer of Rockford, succeeding DR. HOBART W. EDSON, who held the position for 15 years.

WARNER H. NEWCOMB, M.D., Jacksonville, Ill., is the new president of the Morgan County Public Health Board.

GEORGE SEITZ, M.D., of Salina, Kan., has been appointed Saline County Health Officer, succeeding Dr. EDWIN G. GANOUNG.

MARION C. WOODBURY,* of Cleveland, Ohio, has been appointed Director of Nursing Service and Director of the School of Nursing, St. Luke's Hospital, Cleveland, succeeding HAZEL GOFF† who resigned to accept a position in Portugal.

Eastern States

CAPTAIN HENRY H. KESSLER, USNR, former Director of the New Jersey Rehabilitation Clinic, was named the city's outstanding citizen of 1944 by the Newark Advertising Club at a recent luncheon ceremony. Dr. Kessler is now in charge of amputation cases at Mare Island Naval Hospital, California. After the luncheon, Dr. Kessler received a citation of merit from the National Department of Disabled American Veterans.

LT. COL. ELLIOTT S. A. ROBINSON, MC,* formerly of Boston and now Assistant Chief of the Preventive Medicine Service, Office of the Surgeon General, U. S. Army, Washington, has been promoted to the rank of Colonel. Colonel Robinson is on leave after 18 years with the Division of Biologic Laboratories, Massachusetts State Department of Health. He has served as a special consultant in immunology to the Surgeon General.

ERNEST L. STEBBINS, M.D., M.P.H.,* Commissioner of Health of New York City, is serving in Italy on a three months' tour of duty as an agent for the United Nations Relief and Rehabilitation Administration and the U. S. Public Health Service. On leave from New York City, Dr. Stebbins will help to set up a program intended to study and control the spread of tuberculosis and other diseases. In his absence from New York City, FRANK A. CALDERONE, M.D., M.P.H., Deputy Health Commissioner, is in charge. In June Dr. Stebbins will be replaced on a three months' assignment by JAMES E. PERKINS, M.D., DR.P.H., Director of the Division of Communicable Diseases, New York State Department of Health, Albany, and Secretary of the Epidemiology Section of the A.P.H.A.

* Fellow A.P.H.A.

† Member A.P.H.A.

C.-E. A. WINSLOW, DR.P.H.,* Professor of Public Health, Yale University, was elected President of the American Society of Heating and Ventilating Engineers at its 51st Annual Meeting in Boston.

Southern States

LT. COL. HAROLD BENEDICT GOTAAS, SN.C.,* Chapel Hill, N. C., now stationed in Washington at the Office of the Coordinator of Inter-American Affairs, has been promoted to Colonel.

W. W. PETER, M.D., DR.P.H.,* who has served for three years as Associate Professor of Public Health at Yale University School of Medicine, New Haven, Conn., has been appointed Director of the Training Division, of the Institute of Inter-American Affairs, Washington, D. C., effective May 15. He may be addressed at the Department of Commerce Building, 14th and E Sts., N.W., Washington, D. C.

HI EASTLAND STEELE,† who has been with the Bureau of Vital Statistics, Bureau of the Census, Washington, D. C., for nearly 10 years, has been appointed Director of the Division of Vital Statistics in the West Virginia State Health Department.

Western States

RAY G. NEBELUNG, DR.P.H.,† who recently has served in the U. S. Navy, has been appointed Executive Director of the Public Health Fund of the Honolulu Chamber of Commerce and has established his office in the Territory.

Deaths

HENRY PHILIP HIRSCH, M.D., formerly Medical Supervisor of the Department of Child Hygiene of the Board of Health in New York City and for many years in charge of the

Medical Department of the New York Post Office and Medical Examiner for the Veterans Administration at the Veterans Administration Facility, died February 19, aged 74.

CLARENCE FLOYD HOLTEGEL, M.D.,† of Monticello, Ky., formerly Health Officer of Johnson and Wayne Counties, Ky., died January 14, aged 53. He served for many years in the Medical Corps of the U. S. Navy, receiving the presidential citation for bravery and was later stationed at Louisville with the Naval Recruiting Station.

BOYD MERRILL KROUT, M.D., of Stockton, Calif., Assistant District Health Officer of San Joaquin, died suddenly May 4, aged 60.

GORDON BAIRD MOFFAT, M.D.,† of Kalamazoo, Mich., Director of the City and County Health Department, died January 3, aged 46. He was formerly Health Officer of District Number 4, comprising Alpena, Cheyboygan, Montmorency and Presque Island Counties.

RICHARD SLEE, M.D., retired Chief Deputy Health Commissioner of Westchester County, New York, and former District Health Officer of the State Health Department, died April 8 at his home in Stroudsburg, Pa. His age was 78.

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